IDG .net

MICROSOFT WINS ONE

At Deadline: Jury shoots down antitrust claims of Bristol Technology Inc., awards plaintiff $1. Page 4

ERP SCORECARD

E-commerce and customer relationship strategies of SAP, Oracle, PeopleSoft, Baan and J. D. Edwards. Page 22

STUPID USER TRICKS

Face it, some users can be *really* dumb. Here are some favorite examples from our readers. Page 54

COMPUTERWORLD

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JULY 19, 1999 ▪ VOL. 33 ▪ NO. 29 ▪ $4 COPY

JOHN RAE

NABISCO'S JOHN HALPER has a four-part year 2000 contingency plan – a set of 1999 production schedules and inventory targets

YEAR 2000 CHRONICLES

CHAPTER SIX

Having cash on hand to pay employees. Lining up hotel rooms for Jan. 4. Stocking up on Oreos and the ingredients to make them. The six companies *Computerworld* has followed in this occasional series are shoring up their contingency plans and treating the year-end date change like a flood, hurricane or other disaster recovery scenario. Nabisco's John Halper (pictured above) is focusing on getting enough food products where they are needed.

Report begins on page 48.

ALTAVISTA PLANS FREE NET ACCESS

Model uses free Internet access to pull banking and other customers online

BY JULIA KING

In a bid to get more users on the Internet, AltaVista Co. will shortly offer free Internet access to subscribers willing to view ads and provide information about themselves.

The service, which will rely on software technology from Internet start-up 1stUp.com, is scheduled to launch within six weeks, said David Emanuel, a spokesman for the Palo Alto, Calif.-based company.

1stUp officials and analysts expect similar free services — from banks, retailers and others — to quickly follow, as product and service companies push to move more of their customers online, where it's cheaper for companies, such as banks, to do business.

But it remains to be seen how well service providers will be able to support the hundreds of thousands of new users the services are expected to attract — or where the money will come from. Now, for example, Internet service providers spend about $9 billion annually on technology such as routers, servers and the network bandwidth re-

AltaVista, page 101

Free Internet – With Strings

- Subscribers load free CD-based log-in software from their bank, department store or other free service provider onto their PCs
- Subscribers continually view programmed advertising while logged on to the Internet
- The service provider can maintain an "open line" to subscribers, tracking which sites they visit and for how long
- The provider can then use the information it collected or sell it to direct marketers

E-COMMERCE PUSHES REVAMP OF CALL CENTER

Integrating online/ phone customer service

BY CAROL SLIWA AND BARB COLE-GOMOLSKI

Companies doing business on the Web should see their customer service options expand as call center outsourcers revamp their traditional operations for exploding online opportunities.

The new Web thrust could lead to improved service for customers, increased sales (because consumers get the

E-Commerce, page 101

E-RETAILERS EYE OVERSEAS DOLLARS

Logistics tools target shipping, tariff costs

BY CRAIG STEDMAN

Calculating the full cost of sending products to foreign customers is becoming a burning issue for online retailers that want to sell globally and for the shipping companies that make deliveries for them.

Users and analysts said the process is now mostly a manual slog that prevents many Web-based retailers from giving overseas buyers a true picture of the so-called landed cost — what a product will really cost them once all the duties, tariffs and other cross-border shipment fees are added to the price tag.

But some retailers and package carriers are starting to look for help from emerging logistics software that's designed to calculate those costs on the fly, as orders are placed.

E-Retailers, page 101

Distance Disincentive

On average, 30% of U.S. Web-site traffic and 10% of online orders come from overseas customers

But 70% of the companies selling online don't take international orders, in part because of the complexity of calculating the full cost of shipping products overseas

Base: Two separate surveys of 50 companies with e-commerce

SOURCE: FORRESTER RESEARCH INC., CAMBRIDGE, MASS.

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Unattended Remote Disaster Recovery	✔		
Dynamic Tape Drive and Library Re-Configuration	✔		
High-Speed Image Backup	✔		
Free RAID Fault Tolerance	✔		
Shared Tape Library Support (ACSLS)	✔	✔	
Fibre Channel SAN Solution for Windows NT and NetWare	✔		✔
Unicenter TNG® Integration	✔	✔	
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▪ Lotus Notes	✔	✔	
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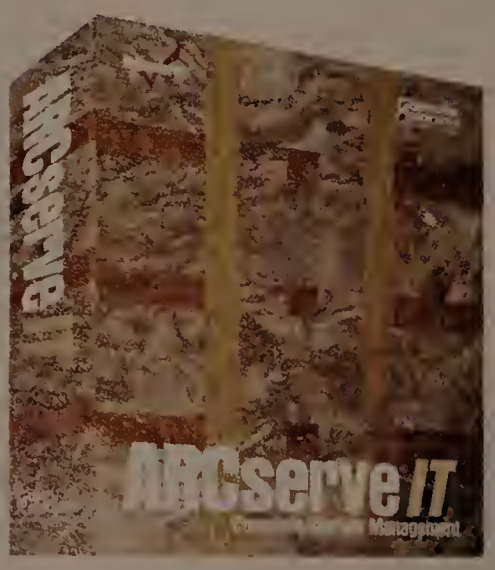

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GREG STIDHAM

PORTAL POWER

Emerging Companies: BroadQuest Inc. lets users access any customer-related data through a single, browser-based interface. The technology is impressive, but even company President Bill Walsh (pictured) acknowledges that it's hard to stand out in the jam-packed portal market. Page 73

ALMOST Y2K READY

Most U.S. nuclear plants are ready for year 2000, but critical fixes remain at some, including infamous Three Mile Island (pictured). Page 42

THE ASSOCIATED PRESS

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JULY 19, 1999

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IF MY INTERNET SERVICE PROVIDER IS MY BANK AND MY INTERNET CONNECTION TIME IS SLOW, I'M GOING TO BE CURSING MY BANK.

JOHN JORDAN, ERNST & YOUNG, ON ALTAVISTA'S OFFER OF WEB ACCOUNTS TO MEMBERS AND THE RISKS TO OTHER COMPANIES DOING THE SAME THING

AT DEADLINE

Y2K Heists a Concern

Gartner Group Inc. said in an advisory that it believes contractors and programmers hired to make year 2000 fixes may have left "trap doors" to move money between accounts, potentially costing companies billions. "Y2K remediation, by definition, creates and increases the opportunity for theft and fraud," said Joe Pucciarelli, an analyst at the Stamford, Conn., company.

Sterling in $163M Deal

Dallas-based Sterling Software Inc. Friday said it signed a $163 million deal to buy Information Advantage Inc., a Minneapolis vendor of data analysis software.

Sterling, which plans to launch a cash tender offer this week, hopes to complete the acquisition late next month.

Information Advantage lost $4.7 million in its most recent quarter on sales of $12.8 million.

Compaq Unveils Storage

Compaq Computer Corp. is expected to announce several storage products today, including enhancements to its StorageWorks Data Replication Manager software product announced in April.

Other announcements: a $2,200 controller card for doubling the capacity of Compaq ProLiant workgroup servers to 1T byte, and a $17,000 RAID Array 4000 server storage system designed to provide high performance availability for mission-critical applications.

Short Takes

Internet retail giant AMAZON.COM INC. was hit with a 36-minute system outage on Thursday. A spokesman said new Web offerings for toys and electronics had no bearing on the glitch. . . . San Francisco-based brokerage CHARLES SCHWAB & CO. said online trades accounted for two-thirds of its transactions during the second quarter. Schwab said it has spent $59 million on computing equipment to expand capacity this year. . . . IBM launched a consulting unit to help businesses implement privacy policies for e-commerce, data warehousing and other applications for both consumers and employees.

Jury Sees It Microsoft's Way

Bristol comes up empty in antitrust suit

BY SHARON GAUDIN

MICROSOFT Corp. last week won the first of three antitrust suits against it, as a jury cleared the company of anticompetitive practices in a complaint brought by Bristol Technology Inc. in Danbury, Conn.

The U.S. District Court jury in Bridgeport, Conn., found that Microsoft violated the state's Unfair Trade Practices Act, but awarded Bristol only $1 in damages.

Bristol had asked for up to $236 million in damages, accusing Microsoft of acting in an anticompetitive manner by refusing to renew Bristol's Windows NT source-code license on reasonable terms.

But several antitrust attorneys said the jury's actions show that Bristol was unable to prove it had been damaged by Microsoft's alleged violation of antitrust laws.

"This is letting Microsoft know that they did something improper," said George Cumming, an antitrust attorney and partner at Brobeck, Phleger and Harrison in San Francisco. "The slap to Microsoft is in the finding — not the amount of the damages awarded."

Antitrust experts also said the Bristol verdict won't have direct legal impact on the U.S. Department of Justice's antitrust case, but added that it's still a damaging decision for the government.

"It surely takes the wind out of the government sails," said Hillard Sterling, an attorney at Gordon & Glickson PC in Chicago. "The DOJ must be concerned that its own case suffers from the same fatal flaws," he said.

The Bristol verdict should also help Microsoft's battered public image, observers said. "I think a lot of people in the public arena . . . assumed that Bristol's fate and [the] DOJ's fate would be similar," said Harvey Saferstein, an antitrust lawyer at Fried, Frank, Harris, Shriver & Jacobson in Los Angeles. "There will be some fallout."

Microsoft called the verdict a win for the entire industry.

"We are extremely pleased with today's verdict," said Jim Cullinan, a Microsoft spokesman. "This is a victory for Microsoft and for the industry. Companies can license their intellectual property in a fair and equitable manner."

"We are disappointed with the jury's findings, and we still firmly believe that Microsoft engaged in anticompetitive behavior against Bristol and that Microsoft is attempting to monopolize additional operating system markets," said Bristol Technology CEO Keith Blackwell in a statement. Bristol is exploring its options, which include filing an appeal.

Patrick Thibodeau contributed to this report.

Directory Vendors to Combine for XML Push

Effort aims to give users interoperability

BY SHARON GAUDIN

Putting their directory battles aside for the first time, a group of rival industry giants last week agreed to ingrain an XML standard in their directories, giving applications a common way to retrieve information.

For large companies that use anywhere from 15 to 150 directories in their enterprises, that could mean easier application development, better use of data and more powerful software, users and analysts said.

"Right now, our big challenge is trying to access data, and it's pretty tough," said Brian Moore, corporate network engineer at Louisville, Ky.-based Direct Sourcing Solutions Inc., a purchasing company for the automotive industry. "Basically, I've got to have an AS/400 programmer, a Microsoft person and a Lotus Notes designer just to make sure my applications can access the information they need. . . . It seems XML could solve that."

Extensible Markup Language (XML) is a formatting language used for document publishing that is widely considered to be the future standard language of the Web.

The group of cooperating vendors have all agreed to use XML as a standard means to tag and present information to querying applications. Bow Street Software Inc., a start-up firm in Portsmouth, N.H., is writing the directory-oriented XML open-source specifications.

While users and analysts say adopting an XML tagging standard is a far cry from making the directories interoperable, it's a first step for these major vendors to agree upon. That gives some hope for greater interoperability one day.

"This is at least some movement amidst all the turf wars," said Steve Rieco, senior systems engineer at PepsiCo Inc. in Winston-Salem, N.C. "Each of my applications has its own directory, its own password, its own information, and in most cases, they don't talk to each other. It's very inefficient. If some of this could be consolidated, it would directly make my support and development so much easier." Added Jamie Lewis, an analyst at The Burton Group in Midvale, Utah, "It will make application development much easier because it will give the applications a common way to read the information no matter what directory it's in."

Directories are like electronic Yellow Pages, listing information, network devices, users and resources. They enable administrators or users to access and manage information.

The problem for most administrators is that directories from separate vendors can't easily share information or automatically update one another. That makes it difficult for one application to communicate with more than one directory, so the same information ends up in different formats in many places throughout the company.

MGM Outsources to Manage Video

BY DAVID ORENSTEIN

Metro-Goldwyn-Mayer Inc.'s home entertainment unit last week struck an outsourcing deal with inventory software vendor and consultant E3 Corp. that it hopes will put its 5,000-title catalog of film videos on the shelves of major retailers more reliably.

Some retailers have been disappointed with the home video category because the industry's "fill rate," or the frequency at which an item is in stock, is about 75%, compared with about 90% for packaged goods such as toothpaste and detergent, said Eric Villette, MGM Home Entertainment vice president of distribution.

E3, however, specializes in inventory management and replenishment and also has experience as a consultant in several industries. Its software, which MGM rival Universal Studios Inc. has been using successfully for years, offers sophisticated data mining capabilities, a very usable interface and the ability to communicate with MGM's SAP AG systems via electronic data interchange, Villette said.

A sweeping outsourcing deal between MGM and Warner Home Video, which managed many aspects of MGM's distribution, inventory and marketing, will expire in February.

Warner helped get MGM on the video shelves at Wal-Mart Stores Inc. and Kmart Corp., but MGM preferred to take advantage of E3's broader experience and software, said Jeff Karbowiak, MGM Home Entertainment senior vice president of operations and finance.

Rather than just buying E3's software, MGM wanted to hold down its overhead costs by outsourcing operations to E3's consulting arm, Karbowiak said.

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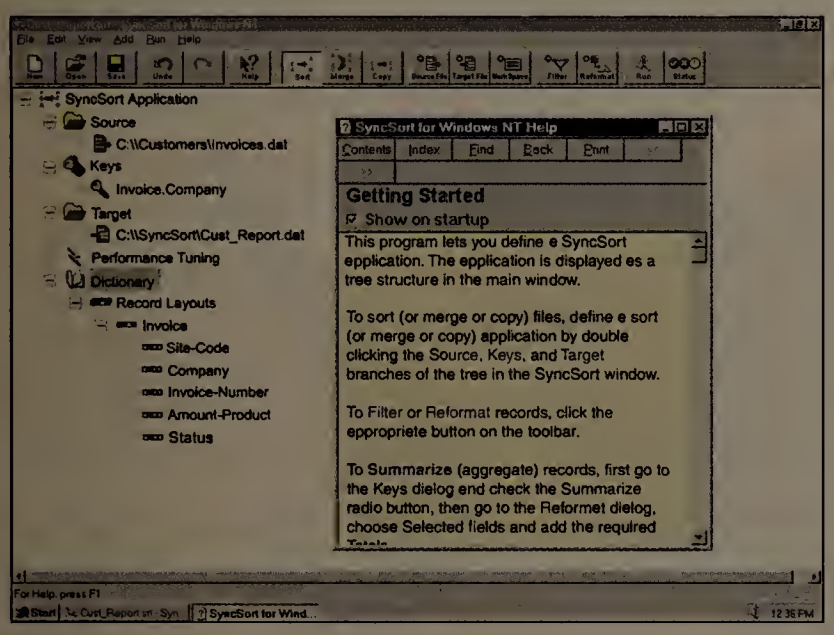

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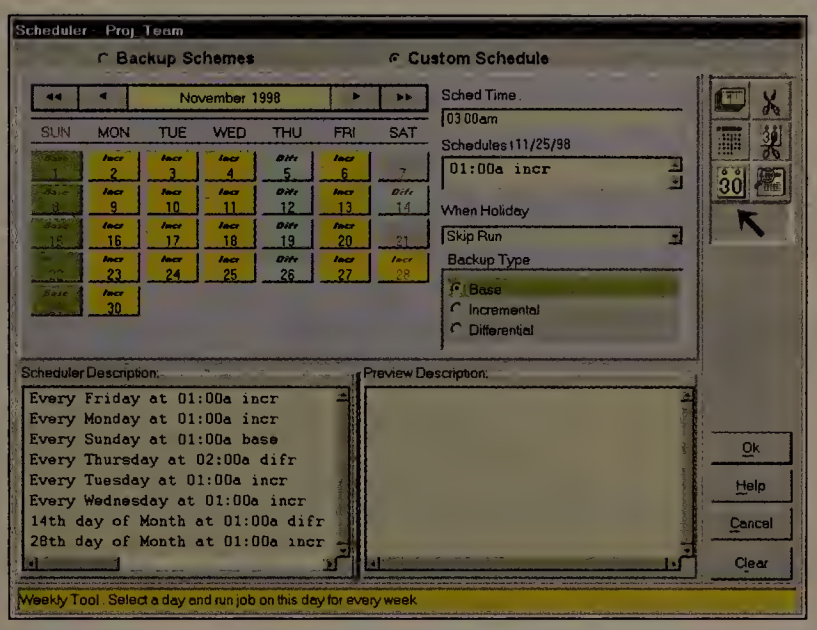

Through the simple, intuitive Backup Express interface, you can schedule backups, run restores, add devices, or check job status.

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Enterprise JavaBeans Grow, But They're Far From Ready

Users, observers say technology needs another year to mature

BY DAVID ORENSTEIN AND CAROL SLIWA

SOME OF THE first prebuilt Enterprise JavaBeans (EJB) are now available to corporate developers. But the buy-vs.-build promise of Java's component model is still at least a year away from being realized, users and industry observers said last week.

The EJB model will eventually let developers snap together prebuilt software modules without having to write the code from scratch. But before that happens, EJB technology has to mature, vendors have to resist the urge to make proprietary products and many more "beans" must be produced.

Flashline.com Inc. in Cleveland last week said it will sell JumpStart, a set of 80 e-commerce EJBs from The Theory Center Inc. in Boston. IBM also plans to roll out several e-commerce EJBs later this year.

JumpStart is already getting a close look from consultants at Perspective Technology Corp. in Tysons Corner, Va., which helped Qwest Communications International Inc. build one of the first major corporate applications based on EJBs [Technology, Jan. 25].

Perspective hopes to build a library of homegrown and off-the-shelf EJBs it can use to build applications for its vertical market of telecommunications company customers.

Once they are available for purchase, application components can save time and money, said Gartner Group Inc. analyst Mark Driver. Of the average $1.1 million cost of an e-commerce site, about 70% is labor. But it could take years for third-party EJB developers to find a way to create useful beans for the multitude of somewhat-incompatible application servers on the market, he added.

At this point, EJBs written for one server aren't likely to work on another. "When the implementation of EJBs becomes consistent among the tool vendors, we clearly can take advantage of them better," said Kas Naderi, senior director of emerging technologies at Bass Hotels and Resorts in Atlanta. "There is still room for interpretation on the implementation of an EJB from vendor to vendor."

Open-source EJBs could solve many problems at Kaiser Permanente in Oakland, Calif. Source code would let the company tweak a bean to solve compatibility problems and incorporate custom logic, said David Tuttle, a senior Web development manager at Kaiser. It would also give it a hedge against smaller bean vendors going out of business, he said. ◗

FTC Curbs Push for Online Privacy Laws – For Now

BY PATRICK THIBODEAU
WASHINGTON

Citing companies' progress in posting online privacy policies, the U.S. Federal Trade Commission last week said it wouldn't seek regulations on the politically explosive issue.

The decision was a big win for the online industry, which has lobbied hard against privacy legislation. But the FTC said it may again seek such legislation if progress stalls or if it finds that privacy seal programs, such as those offered by the Better Business Bureau Online and TRUSTe in Palo Alto, Calif., are toothless.

"The industry is certainly capable of regulating itself," said Don Zereski, general manager of online community Tripod Inc. in Williamstown, Mass., who praised the FTC's decision. But he also said companies "should follow the privacy guidelines" set by TRUSTe and other groups and "respect people's privacy."

FTC Chairman Robert Pitofsky told a House subcommittee last week that the decision was based on a one-year increase in the number of companies posting online policies from 14% to 66%, according to recent studies. The FTC wants to find out if the online privacy policies "are worth the screen they appear on," he said.

The FTC's decision angered U.S. Rep. Edward Markey (D-Mass.), who said he plans to introduce online privacy legislation. Markey asked how the FTC could reject regulation knowing private efforts will never reach 100% compliance.

Markey is one of many in Congress seeking privacy protections, but many of those bills deal with specific aspects, such as medical and financial privacy. He said he plans to offer comprehensive legislation.

Pitofsky argued that there are important issues at stake.

"We are at the dawn of the most impressive new sector of the economy that this country has ever seen," Pitofsky said. "We want to stay flexible."

"Technology is changing rapidly — so what?" Markey shot back. "Are people not entitled to privacy? Are people not entitled to protection from fraud?" Pitofsky wasn't given a chance to respond, but many state legislatures are now asking the same questions.

States, which have beaten Congress to the punch on antispam laws, may do the same on the privacy issue — creating new legal perils for companies.

"It can do nothing but create incredible confusion," said George Trubow, director at the center for information technology and privacy law at John Marshall Law School in Chicago. New Jersey, Washington, Connecticut and New York are among the states beginning to look at privacy laws. ◗

JUST THE FACTS

Other Privacy Land Mines

- The **European Union** has adopted a directive that gives its residents a higher standard of privacy protection than U.S. citizens. The EU wants U.S. firms to abide by its rules.
- **Individual states** may adopt online privacy protection bills in the absence of federal rules. Congress is unlikely to adopt a federal bill in light of the FTC action.
- Focus will turn to **targeted legislation** over financial and medical transactions.

Russia's Year 2000 Outlook Grows Bleaker

BY THOMAS HOFFMAN

It could be a Siberian winter for U.S. companies like General Motors Corp. and others with operations in Eastern Europe if Russia doesn't get its year 2000 act together.

Last week, Russia's government warned that only one-third of its most important computer systems are year 2000-ready. The disclosure came amid mounting concerns that Russian banks and gas companies are running out of time to fix computer systems.

For example, U.S. manufacturers have deep concerns about the Y2K-readiness of Gazprom, the Moscow-based energy giant that provides 36% of the world's natural gas.

Many big U.S. manufacturers have plants in Eastern Europe that Gazprom serves. Should there be problems with the computer control switches on Gazprom's pipeline, "there will be a direct impact" on U.S.-owned plants and Eastern European plants to which U.S. companies have outsourced manufacturing work, said William Ulrich, president of Tactical Strategy Group Inc. in Soquel, Calif., and a *Computerworld* columnist.

One of the problems is how Russia has prioritized its year 2000 work. Much of the focus has been on fixing hardware systems, such as telephone switches and computer microchips.

"They don't understand the problems with software," such as the need to repair and test inventory management or accounting systems, said Vivek Wadhwa, CEO of Relativity Technologies Inc., a software developer in Research Triangle Park, N.C.

Relativity is working with Lanit Holdings, a Russian systems integrator, to move Russian companies to an e-commerce business model.

One ray of light: Russia's parliament last month approved legislation that would require companies and government agencies to share Y2K information with businesses or customers who have a need to know, said William McHenry, a business school associate professor at Georgetown University in Washington. ◗

Ready for Another Russian New Year?

Major Y2K moves by the Russian government in the past month:

- Russian President **Boris Yeltsin decreed that government agencies take necessary actions** on year 2000, including a recommendation to allow government authorities to revoke the licenses of banks that aren't Y2K-compliant. But the language is ambiguous, leaving it unclear whether the decree is enforceable.
- **Two senior government officials** overseeing Russia's Y2K efforts, including Alexander Krupnov, former head of the state committee on telecommunications, **have been replaced.**

SOURCE: WILLIAM MCHENRY, ASSOCIATE PROFESSOR, SCHOOL OF BUSINESS, GEORGETOWN UNIVERSITY

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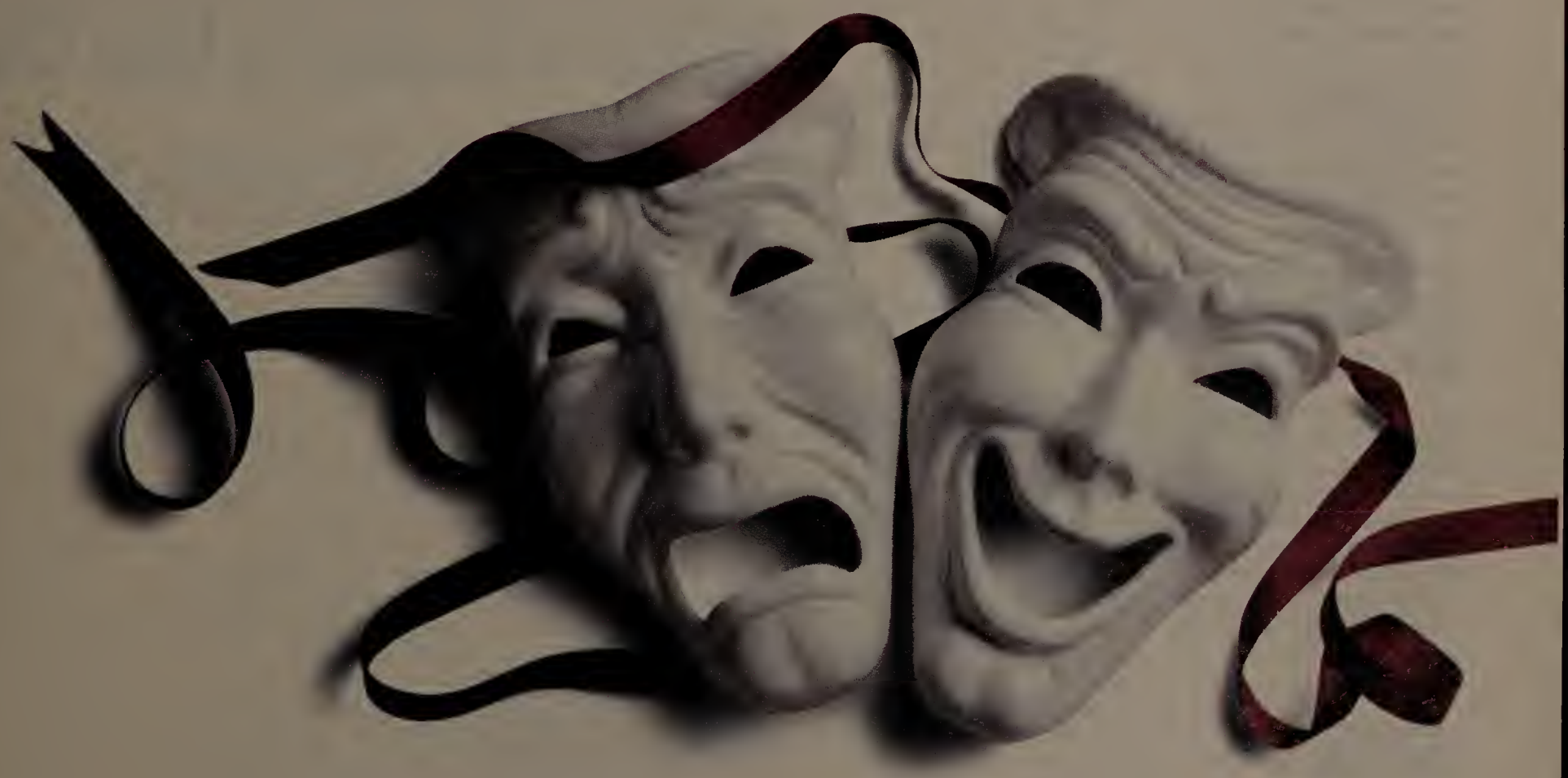

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BRIEFS

House Panel Pushes R&D Credit Extension

The U.S. House Ways and Means Committee last week recommended a five-year extension of the research and development tax credit. The tax credit, which was established in 1981, has been extended nine times. The most recent extension expired June 30. Information technology trade groups are pushing to make the credit permanent.

GTE Joins Providers

GTE Corp. in Irving, Texas, last week said it will become an application service provider. GTE's Network Commerce Platform will let customers rent e-commerce and other corporate applications via a secure Internet connection and a Web browser. Sun Microsystems Inc. and Netscape Communications Corp. will provide e-commerce applications.

Equifax Taps EDS in Outsourcing Pact

Electronic Data Systems Corp. will take on 130 IT workers at Equifax Payment Services as part of a 10-year, $200 million outsourcing deal. EDS will process transactions for Equifax's 6,000 bank and credit union clients, as well as about 100,000 merchants. EDS will also manage all computer operations at Equifax's St. Petersburg, Fla., data center.

Short Takes

COMPAQ COMPUTER CORP. said this week it will expand its Alpha server line with the new GS60E, an $85,000 system slated to ship in August. . . . CISCO SYSTEMS INC. and MICROSOFT CORP. extended a 1997 development deal that will provide Cisco support for Active Directory when Windows 2000 ships. . . . Cisco also said it will debut five new Asynchronous Transfer Mode products next month that were designed to lower network operating costs and complexity. . . . ORACLE CORP. said it has signed up 800 paying customers for Oracle8i for Linux, which should be available in two to three weeks.

Baan Users Having Upgrade Problems

Tools for migrating data still not ready

BY CRAIG STEDMAN

TEN MONTHS after a major revamp of its enterprise resource planning (ERP) system was released, Baan Co. is still trying to perfect data-migration software needed by users who want to upgrade.

Continued problems with the migration code have forced the first two users working on upgrades to the new BaanERP software to delay their projects — in one case, by nearly a year.

"I'm not throwing my hands up. But it's a frustrating and drawn-out process," said Norman Thomas, director of information systems at Trojan Technologies Inc. in London, Ontario.

Trojan, which makes water treatment equipment, wanted to upgrade its Baan applications last November. But the schedule slipped month by month, and Thomas said he doesn't expect to go live with BaanERP until October.

A Lot of Work Ahead

That's partly because Trojan is in its fiscal fourth quarter and doesn't want to make major changes until the quarter ends in August. But Thomas said there are still "many weeks of work left" to get Baan's migration tools to the point where purchase orders and other data can be successfully moved to BaanERP.

The migration problems, which produce inaccurate data tables and fields in BaanERP, don't affect new users who are starting from scratch with the software.

But for existing users, moving up to BaanERP is especially tricky because Baan made big changes in the way data is defined and formatted in the software, said David Dobrin, an analyst at Benchmarking Partners Inc. in Cambridge, Mass.

That should benefit users because Baan's old data model "was very cobbled together, with a lot of inconsistencies," Dobrin said. "But data migrations are going to be nasty."

Officials at Baan, which is based in the Netherlands, weren't available for comment on the data migration issue last week.

Baan has lost money for three straight quarters and laid off 20% of its workforce last fall. But Thomas said that doesn't appear to be playing a role in the migration problems. "I don't feel real good about the fact that we're not live yet, but I do feel that Baan is doing its best," he said.

Another Baan user, Newburg, Ore.-based A-dec Inc., said it ran into problems with the vendor's tools for migrating between older releases during an upgrade to Baan IV — the release prior to BaanERP. A-dec completed the upgrade early this month.

The dental equipment maker altered a half-dozen Baan programs and wrote some of its own code to make the migration work, said CIO Keith Bearden. Just ensuring that A-dec had been sent the most recent release of the migration tools was difficult, he added.

JUST THE FACTS

Baan's Data Migration

The issue: Baan's latest ERP release includes major changes in the way data is defined and formatted, which complicates upgrades from older versions.

The fallout: The new software became available last fall, but Baan is still trying to get its data-migration programs to work properly.

The impact: The first two users attempting upgrades have had to delay their projects until October and early next year.

Y2K May Be Knockout for Major Cities

But some IT pros not too worried

BY PATRICK THIBODEAU
WASHINGTON

Ten of the largest U.S. cities don't expect to complete their Y2K repairs until the fourth quarter, a situation that has alarmed some leaders in Congress. But some information technology officials say they aren't too worried.

Only Dallas and Boston have completed their Y2K work, according to a General Accounting Office study released last week. Los Angeles, Chicago and Washington are among the cities that won't be finished with their projects until the last minute, the GAO said.

Phoenix is another city that is running very late, but Janet Wilson, vice president of information systems at Mutual Insurance Company of Arizona, said she isn't too concerned. Wilson said she believes her primary concerns — electricity, telephone and other utilities — "are probably going to be fine."

Phoenix may have some "minor blips," but Wilson said she isn't expecting anything beyond that. "[Y2K] is so much blown out of proportion," she said.

Memphis also has potential Y2K problems, the GAO said. It isn't scheduled to complete its work until the third quarter. But Michael Embry, a lead analyst at AutoZone Inc., a Memphis-based auto parts maker, isn't losing sleep. "I really think Y2K fear is just that — fear," Embry said.

U.S. Sen. Christopher Dodd (D-Conn.), vice chairman of the U.S. Senate Special Committee on the Year 2000 Technology Problem, said any city that has set the fourth quarter as its Y2K completion date "is traveling in a fantasy world — you're just not going to get it done."

"I don't think the American people are really aware of what might happen," said Sen. Robert Byrd (D-W. Va.). "I feel very uncomfortable."

In assessing a city's Y2K readiness, the GAO looked at electricity and other utilities, emergency services, hospitals and city services, among other things.

One city far behind in its Y2K work is Washington. Suzanne Peck, the District of Columbia's chief technology officer, said Y2K work didn't begin until June 1998, when she was hired for the job.

Despite the problems at the local level, the Department of Defense said its massive logistics system had proved Y2K-compliant in a test last week. The system delivers everything from ammunition to paper supplies for all of the armed services.

Defense officials created a parallel system — duplicating the entire logistics system, after repairing some 200 million lines of code, on a separate system. All tests were completed last week, and Pentagon officials said they found only three errors. A cost figure for the test wasn't available. The department spent $3.65 billion on all its Y2K repairs.

Y2K Ready and Not

Status of cities:

READY
Dallas and Boston

READY BY SEPT. 30
New York, Houston, Philadelphia, San Diego, San Jose, Indianapolis, Memphis, Milwaukee and Jacksonville, Fla.

READY BETWEEN OCT. 1 AND DEC. 31
Los Angeles, Chicago, Phoenix, San Antonio, Detroit, San Francisco, Baltimore, Washington, El Paso and Columbus, Ohio

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Desktop Management Tools Arrive – Too Late for Some

BY DAVID ORENSTEIN

Emerging tools to automate PC software distribution and configuration can cut costs and save time but may be too late for users who have already patched together their own.

Because they can limp along with other methods or have created their own tools, many users aren't evaluating the market like they do for more essential software such as Web servers and databases, said Philip Mendoza, an analyst at International Data Corp.

For example, the information technology department of Pacific Northwest National Laboratory in Richland, Wash., uses homegrown tools, said Richard Berg, a science and engineering associate. The IT staff didn't like the "push" approach of some automated tools that impose new versions of software on users, which can result in file incompatibilities.

Pacific Northwest's tool monitors PCs for out-of-date software and notifies users of available upgrades, Berg said. The intranet-based tool was also much cheaper to develop for 5,000 users than paying the $20 per user that some tool vendors charge, he added.

Tools on the Way

This week, 20/20 Software Inc. in Beaverton, Ore., will release Version 1.1 of its AutoInstall automatic software distribution and installation tool. Last month, Hewlett-Packard Co. announced a partnership with Open Software Associates Inc. in Nashua, N.H., that will include a partial version of its Netdeploy 4.0 software on HP PCs. HP also announced a utility to ease the configuration of software images (the combination of applications, utilities and user interface that give a PC its look and feel) on its Vectra and Kayak PCs.

Traditionally, users of commercial tools had to use separate products to manage distribution and installation, said Norbert Kriebel, an analyst at Cambridge, Mass.-based Giga Information Group Inc. Even then, as many as 25% of installations would fail the first time, he said. Products that marry installation and distribution can help, Kriebel said, but the best will likely come not from installation software vendors like 20/20 and Install Shield, but from network management vendors such as Computer Associates International Inc. and Tivoli Systems Inc.

Still, the MCI Systemhouse unit of Plano, Texas-based outsourcer Electronic Data Systems Corp. used the first release of AutoInstall in April for a 7,000-seat desktop software rollout for a major West Coast insurer, said development manager Chris Burris. AutoInstall compares a PC that has an older software image with one with the newer image and generates a script to update the older one, he said.

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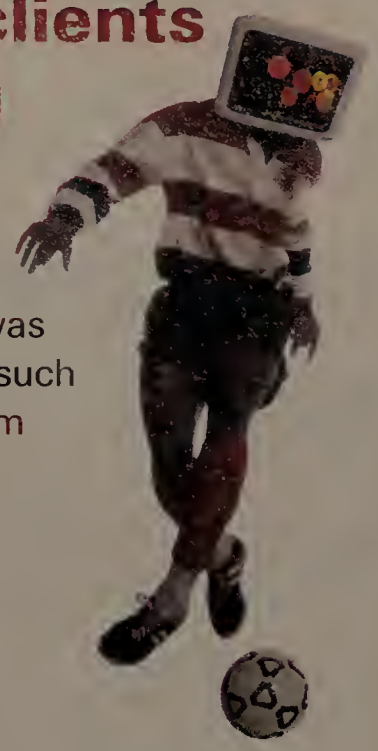

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Vendors Post Back Orifice Antidotes

Developers claim Trojan horse defeats antivirus software protection

BY ANN HARRISON, DEBORAH RADCLIFF AND KATHLEEN OHLSON

SECURITY software vendors last week claimed to have developed antidotes to the Back Orifice 2000 (BO2K) Trojan horse, which allows attackers to remotely access Windows-based PCs. But the program's ability to change attack signatures may foil efforts to detect it, according to hackers who developed it.

Antivirus and intrusion detection tools typically look for specific "signatures," or patterns of text in the source code that are common to a certain virus, Trojan horse or hostile applet. But the hackers who developed BO2K, the San Francisco-based Cult of the Dead Cow, said they used a random number generator that allows exploits to acquire different signatures each time they are compressed.

BO2K targets Microsoft Corp. Windows and Windows NT-based systems, allowing an intruder to take control of the desktop without the user's knowledge. BO2K is promoted by its developers as a remote NT administration tool that allows network managers to monitor company PCs.

But because the first version of BO2K was used to hack company networks and because the source code is available on the BO2K Web site (*www.bo2k.com*), it's likely that others will create variants or embed the code in seemingly innocent applications. No BO2K infections have been reported so far. But some of the BO2K CDs distributed July 10 at the Defcon hacker convention were apparently infected with the CIH virus, an incident that the Cult of the Dead Cow said was inadvertent.

Cameron Cosgrove, vice president of technology at Pacific Life Insurance Co. in Newport Beach, Calif., said his company will fight BO2K by following its policy of checking daily for updates to its McAfee VirusScan product from Network Associates Inc. Cosgrove said Pacific Life immediately downloads updates and pushes them to desktops.

Referred to as a Trojan horse because it arrives cloaked as a useful item, BO2K is introduced when users click on an attachment to an e-mail message or a software download.

Microsoft denies that BO2K embeds itself in PCs by exploiting a security hole in the Windows operating system, said lead Windows NT product manager Jason Garms in a statement.

Garms urged users to be wary of opening attachments from unknown sources.

Other precautions urged by experts and security vendors include using antivirus software to detect Back Orifice as it arrives at users' desktops, deploying a network assessment tool to eradicate it after systems have been infected and updating antivirus software. ◗

Radcliff is a freelance writer in Northern California.

Fighting Back Orifice

Where to go for updates to detect and disable Back Orifice 2000

- Trend Micro Inc. antivirus.com
- Symantec Corp. symantec.com
- Network Associates Inc. nai.com
- Internet Security Systems iss.net
- Computer Associates International Inc. cai.com/virusinfo

MOREONLINE

For resources related to viruses, such as FAQs and publications, visit our Web site.
www.computerworld.com/more

Informix Revamps ODBMS, Marketing Needs

BY STEWART DECK

Users and analysts say the first complete rewrite of Informix Corp.'s flagship object relational database in three years shows off Informix's technical strengths, but they added that the company's sometimes underwhelming marketing practices will be key to its success.

After three years of development, Informix will unveil the new version of its database this week. Formerly called Centaur, the Informix Internet Foundation 2000 database will be shown at this week's national meeting in San Diego.

Communication

"In the past we've been criticized for totally lacking marketing," said Jean-Yves Dexmier, Informix's new president and CEO. "So we have started making sure we communicate our management philosophy while telling about the practical advantages of our products."

Informix will market a new version of its database with updates. The latest edition has the capability to incorporate Web-based and other nontraditional data types including geospatial, video and image data. It bundles Datablades technology into the database server itself, which allows users to manage Web content and perform context-sensitive, fuzzy-logic searching against text. Users will be able to run COM+ and ActiveX components as well as Java code using a built-in standard Java Virtual Machine. The database is expected by mid-September.

"Their Datablades approach sets Informix apart because it lets users put more capabilities and business logic on the server so that applications don't have to be so complicated" or spread over as many layers, said Carl Olofson, an analyst at International Data Corp. in Framingham, Mass. Java Virtual Machine will also give developers more options for placing code in a distributed environment for more customization and better system efficiency, he said.

Michael Schiff, an analyst at Current Analysis Inc. in Sterling, Va., said marketing is vital to Informix, once a database leader but now a distant third in database revenue behind Oracle Corp. and IBM.

In recent years poor marketing has led to user confusion, slowed development and lost revenue. "They've always been a marketing-challenged company," said Fred Hubbard, president of the International Informix Users Group and vice president of business development at Challenger Systems Inc. in San Jose. ◗

New Top Gun at Database Firm

Dexmier: Informix will be market-driven

Perhaps it's because he performed piano sonatas in large concert halls as a child prodigy, and later flew Mirage fighter jets for seven years in the French military.

Whatever the reason, **Jean-Yves Dexmier** doesn't seem too fazed about becoming a Silicon Valley chief. Taking over as president and CEO at database maker Informix Corp. after two years as the company's chief financial officer and vice president of field operations is just another challenge, he told *Computerworld* senior writer Stewart Deck last week.

■ On Informix's challenges:

When you're talking about offering foundation technology for Internet applications, speed is of [the] essence. We'll know we're executing quickly enough by measuring how fast we're growing in our target markets.

Informix has always been recognized for its innovative technology and criticized for totally lacking marketing, [so] we started a year ago to become fully market-driven. That means understanding the requirements of the markets and driving product specifications from the market.

■ On Informix's new Centaur database, also known as Informix Internet Foundation 2000:

We spent three years of intensive [research and development] work to develop a foundation for Web infrastructure. It is fundamental to have an infrastructure that can run components, business logic and applications in the server. It also lets you run any component written in Java, COM+ or ActiveX in the server.

JEAN-YVES DEXMIER said Informix's growth depends on its ability to capture target markets

[Centaur's] object-relational code also gives us an advantage because we can design and use a piece of code written by a customer as an object running in the foundation rather than outside the database.

■ On being stereotyped as a CFO:

I am a software engineer by education and have a Ph.D. in electrical engineering. I was in general management, running businesses in France, when Thomson SA asked me to lead the turnaround of the Thomson Consumer Electronics business in the U.S., and the only title we could come up with at the time for that position was CFO. I've spent a lot of time in sales, general management and engineering, [so] I think I understand this market pretty well. ◗

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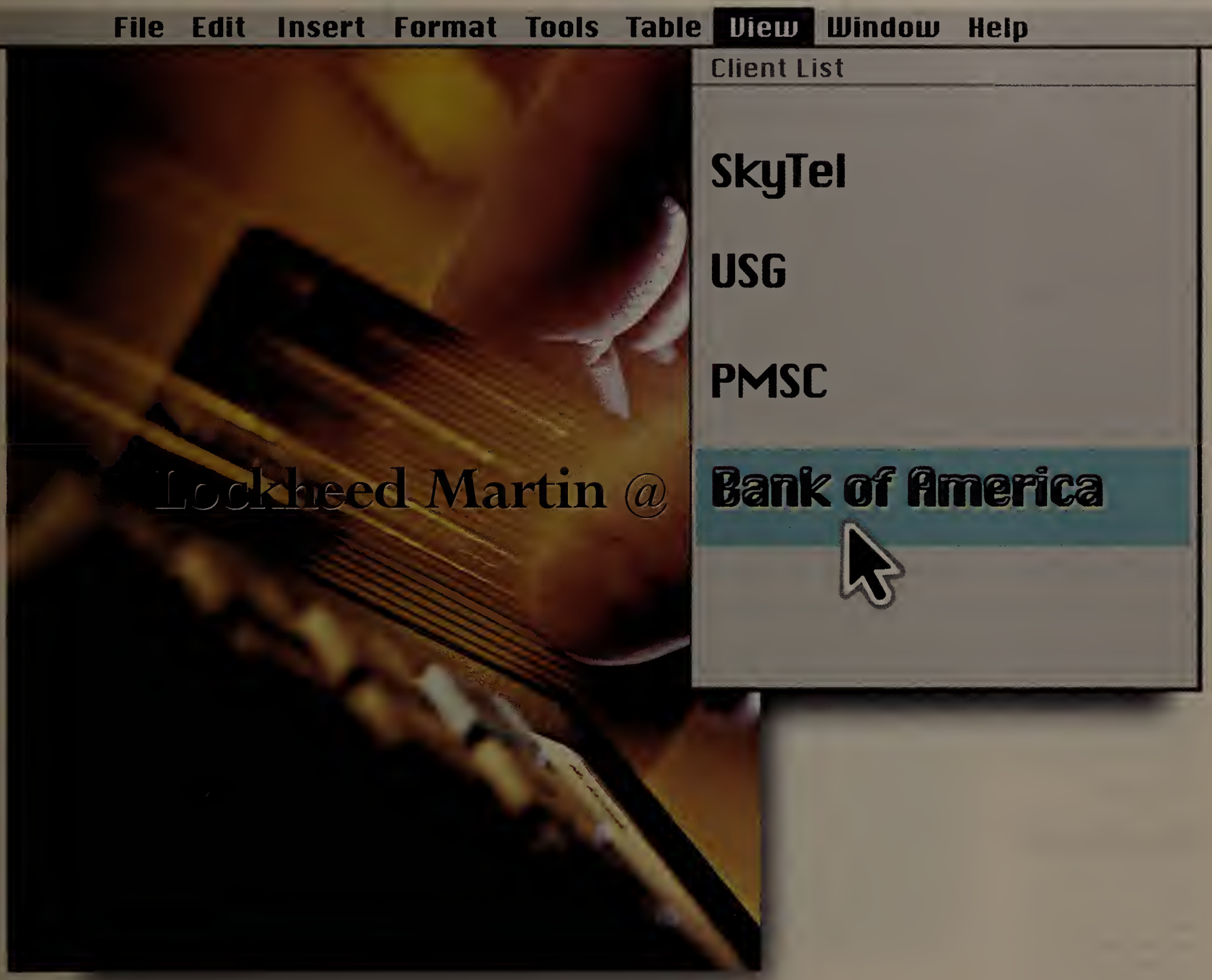

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BRIEFS

Defense Department Awards Wireless Pact

The U.S. Department of Defense has awarded a five-year contract worth an estimated $248 million to Symbol Technologies Inc. Symbol, in Holtsville, N.Y., will provide wireless mobile computing and scanning systems, as well as related software, services, support and systems integration, the company said.

Spin-Off Sues Unisys

Teamquest Corp. in Clear Lake, Iowa, has filed a $65 million lawsuit against Unisys Corp. for breach of contract. Teamquest, which was spun off from Unisys in 1991, claims that Unisys reneged on a royalties deal for software sales. Unisys said it would fight the claim.

Supply-Chain Market Jumps 50% in 1999

AMR Research Inc. in Boston has predicted that the worldwide market for supply-chain management technologies and services will reach $3.9 billion this year, up 50% from last year. The figures include revenue from software, hardware, consulting and training. By 2003, the market should hit $18.6 billion, the research firm said.

Compaq Names CIO

Compaq Computer Corp. has named Robert V. Napier as its CIO and senior vice president of information management. Over the course of 25 years Napier was CIO at Mariner Post-Acute Network, Delphi Automotive Systems, Lucent Technologies Inc., AT&T Global Business Communications Systems and Lockheed Information Management Services.

Unicenter to Get Handheld Tool

Riverbed Technologies Inc. in Vienna, Va., said it will partner with Computer Associates International Inc. to integrate its handheld systems management tool, ScoutIT, with CA's Unicenter enterprise management software.

Web Tool Updates Help When Traffic Hits

Switches, services designed to augment hardware headroom, fend off site outages

BY JAIKUMAR VIJAYAN

EMBARRASSING AND high-profile Web-site outages, like the one that hit online auctioneer eBay Inc. last week, hold a scary lesson for corporate webmasters: An informed guess may be the closest you can come to figuring out how much hardware you need to host your Web services.

Unpredictable usage patterns and huge spikes in traffic — reasons why online sites sometimes crash — make it nearly impossible to accurately "size" systems for high-traffic Web environments, users and analysts said.

So the only option is to sock away lots of processing headroom — and have methods in place that will let you quickly add more capacity, they said. Although determining up front how much capacity is needed is a hit-or-miss exercise, there are new tools and services that could make it easier to troubleshoot, and even prevent, such crashes.

The CS-100 "Web switch" from ArrowPoint Communications Inc., for example, quickly routes processor-intensive requests such as image processing to separate servers, leaving other servers free for tasks like processing transactions. The product, which starts at $17,995, was released in September.

By reading requests from Web browsers at the layer of the cookie (user-specific information stored on the user's PC) and Web address, the switch routes requests to different servers based on exactly what the user is requesting, said a spokesman at Westford, Mass., ArrowPoint.

From Users' Perspective

On another front, Keynote Systems Inc. in San Mateo, Calif., last week launched services aimed at helping companies assess their Web site's performance from the point of view of their geographically dispersed users in up to 35 cities worldwide.

The company's upgraded Perspective 4.0 service includes an enhanced diagnostic tool that lets users determine the length of time it takes to download specific Web page components — such as ads, images and tables.

Contributing Factors

Although eBay has been closemouthed about the cause of its repeated server crashes, the outages may have been compounded by the auctioneer's apparent lack of reliability procedures and by its constant adding of new hardware — and risking potential disruptions each time — to keep up with increasing volume [Technology, June 28].

"The intractable problem is that whatever *x* you size for, you may be totally blown over when you get 10x, 100x, 1,000x more users than you expected," said Jonathan Eunice, an analyst at Illuminata Inc. in Nashua, N.H.

In traditional commercial application environments, and even with intranets, managers have an accurate idea of the user population, their usage patterns and the hours of peak operation, said Craig Brauer, Internet marketing manager at Cabela's Inc., a manufacturer of outdoor gear in Sydney, Neb.

Traffic at Cabela's online retail storefront has grown from 90,000 hits per month in 1997 to 12 million hits per month today. To accommodate such growth, Brauer tries to make sure current loads don't occupy more than 20% to 30% of the hardware's capacity at all times. Whenever average loads climb to more than 30%, the company adds more hardware.

"It is exactly the opposite of what used to happen in the data center, where excess hardware capacity rarely exceeded 10%," he said.

It's a mistake to size Web servers based just on expected average usage, said Kal Raman, CIO at Drugstore.com in Seattle. Instead, the start-up planned its hardware purchases using estimated volume peak loads as the baseline, then added enough capacity for roughly three times that load.

Also budgeted into that calculation are estimates on things like how many people will just surf the site vs. actually buy from it — a process that is more resource-intensive because it involves interaction with the back-end database. ◗

Reporters Sami Lais and Carol Sliwa contributed to this article.

E-Commerce Tools to Headline at CA Confab

Also on tap: Plans for Platinum products

BY SAMI LAIS

CA WORLD PREVIEW

Computer Associates International Inc. expects more than 25,000 information technology managers from around the globe to descend on New Orleans this week for its annual conference.

CA will stage a weeklong series of product and features announcements, as well as plans for the tools it acquired in last month's purchase of Platinum Technology Inc.

■ Leading off today will be news of what CA CEO Charles Wang last month promised would be a major e-commerce initiative. High on the list will likely be integration of the company's Neugent neural network technology, with visualization and data warehousing for predictive business information applications.

■ Also at CA World, which includes PlatForum — Platinum's annual conference — CA tomorrow will release the "detailed product road maps" promised last month by CA President and Chief Operating Officer Sanjay Kumar. The road maps will detail CA's development plans for all Platinum tools.

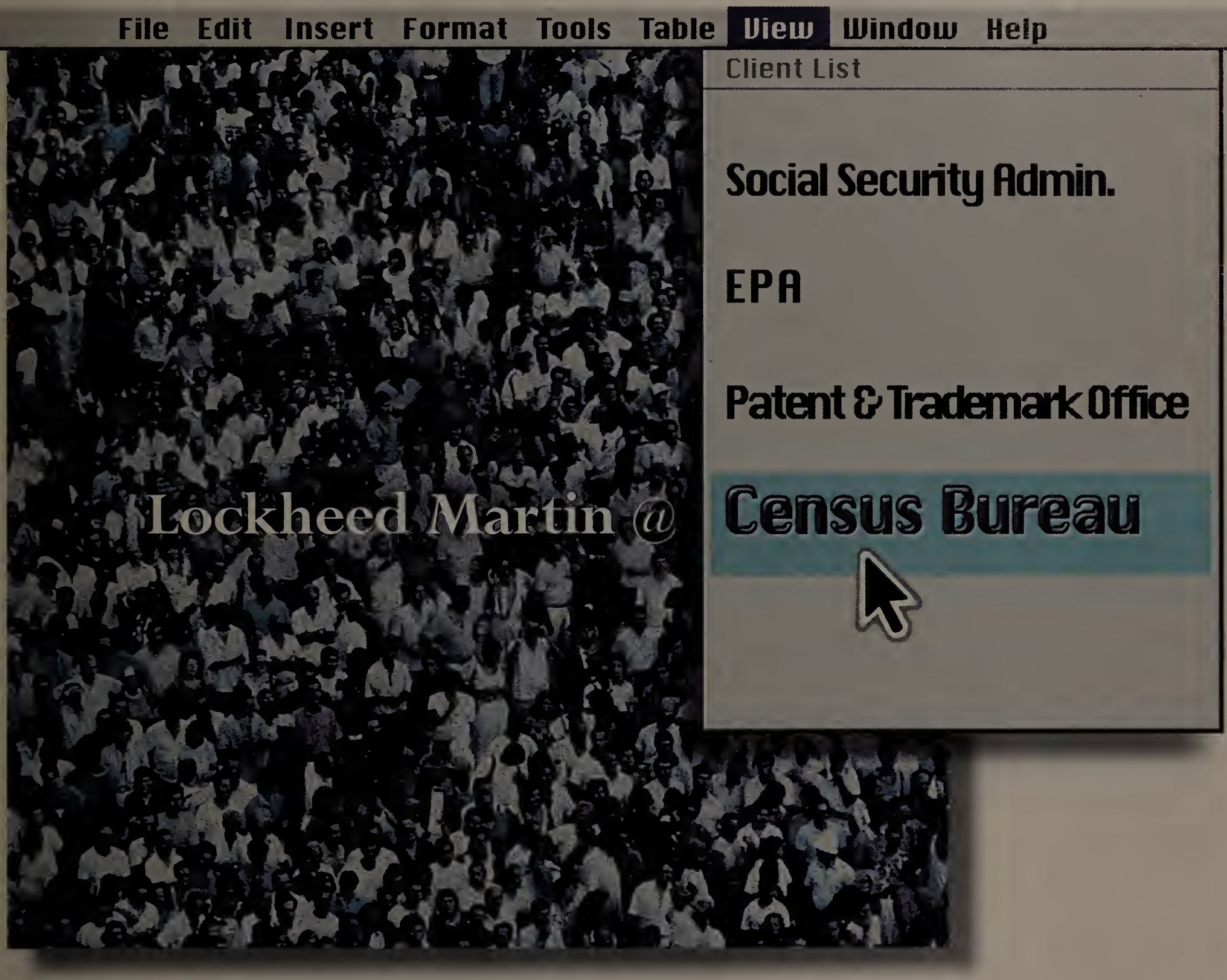
■ Although CA has offered no specifics, it has promised to integrate Platinum's ADvantage application development and design suite into Jasmine TND — the object-oriented database that will serve as a repository for CA's Unicenter TNG management framework.

■ In demonstrations Monday, CA will show how it hopes to persuade application developers to take the same 3-D technology used to produce the movie *Antz* and apply it to a wide range of applications.

CA has been criticized for its so-called video game interface, which offers virtual-reality views of servers, for example. But 3-D views are often "highly compatible with the human brain," said Jonathan Eunice, an analyst at Illuminata Inc. in Nashua, N.H.

■ Veteran attendees of CA World will note a growing trend — the presence of other software vendors. As recently as four years ago, "CA was considered an island," Eunice said. "Their products were seen as not playing well with other people's management tools." Not so today. Dozens of vendors will be on the floor, touting hundreds of tools built to snap into CA's framework. ◗

MISSION: Who are "We The People"? And how many of us are there? Two hundred seventy-five million, three thousand and six. Or maybe seven. We won't know for sure until census-takers canvass the nation in the year 2000. It's a job they've been doing since 1790. This time, it will be made easier by a technology system developed by Lockheed Martin.



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Web Tools Help to Better Manage Customer Relations

Sybase leads pack of CRM rollouts with deal to remarket Sales Vision's application

BY MATT HAMBLEN

The trend toward moving customer relationship management (CRM) tools to the Web will be punctuated today by Sybase Inc.'s expected announcement of a multiyear agreement to resell Web-based CRM tools from Sales Vision Inc.

Web-enabled CRM is catching on because it can help corporations better leverage the customer information in their Web sites, databases and call centers, analysts said.

Currently, a customer who sends e-mail after visiting a Web site, for example, often isn't compared with customers who have purchased products before and are then tracked in a database.

More CRM News

The Sybase/Sales Vision announcement is the latest in a slew of Web CRM rollouts, including the following:

■ SalesLogix Corp. in Phoenix last week announced CommerceLogix, a package of tools for midsize businesses that are selling on the Web.

Bill Curtis, managing director of The Hillside Group LLC in Ocala, Fla., said his company has used one part of CommerceLogix, called eLeadSite, for nearly a year to collect customer information on its Web site. The data is then transferred automatically to Hillside Group's database.

Hillside provides financing for uninsured medical procedures, serving nearly 2,000 medical practices in the U.S. The eLeadSite tool has led to an increase in the volume of customer applications processed from about 75 to 300 per day, Curtis said.

■ Exactium Inc. in Atlanta announced Version 7.5 of its product configurator.

Garth Wright, manager of business applications at Timberjack, an Atlanta-based subsidiary of Metso Corp. in Finland, is installing the latest version of Exactium to help district sales managers worldwide configure its forestry cutting equipment.

"We want to present one face to the entire world, so someone ordering a machine in Europe sees what someone here would," Wright said. Using the configurator, a user with no knowledge of Timberjack equipment could answer a series of queries about what product functions he wants, and the software would build them in the appropriate order.

■ SAP AG recently announced that the company will sell software tools for managing product configuration and pricing for companies that are selling on the Web [News, July 12].

Few details were disclosed of the deal between Sybase in Emeryville, Calif., and Sales Vision in Charlotte, N.C. Sales Vision's Jsales, a Java-based CRM application, was recently purchased by The Northern Trust Co. in Chicago for its 5,000 sales and marketing users in the financial services arena [Business, March 22].

JUST THE FACTS

Webifying The Front End

■ **Customer relationship management tools** are a broad category of front-office applications that automate sales, marketing and customer service tasks. For example, they could allow a salesperson to check inventory while on the road to see if a product with certain features is in stock or can be built quickly.

■ **Web-enabling such tools** means a salesperson can consult corporate data via the Web, or a customer on a Web site can navigate through automatic functions that allow the company to provide more services.

Report: Vendors Find More Year 2000 Bugs in Products

BY RICK SAIA AND THOMAS HOFFMAN

Last month, 359 commercial information technology products saw a change in their year 2000-compliance status.

The bad news is that 44% of those status changes — representing 157 products — were negative. That meant that vendors either revealed new Y2K problems with their products or discontinued support for such products.

Those findings were published by Infoliant Corp. (*www.infoliant.com*), a Pittsburgh-based firm that has tracked vendor-reported year 2000 status changes on 3,300 IT products since 1997. Products from Microsoft Corp., IBM and Computer Associates International Inc. were among the 359 tracked last month.

On average, about one-third of the compliance changes for the previous four monthly reports were negative, Infoliant said.

Another disturbing statistic from the Infoliant report: Nearly 2,000 of the products Infoliant tracks still haven't been tested by their manufacturers.

Reason for Concern

That's troubling because, in many cases, "when a vendor tells a customer that a product is [Y2K] compliant, the customer doesn't bother testing it," said William Ulrich, president of Soquel, Calif., consultancy Tactical Strategy Group Inc. and a *Computerworld* columnist. Ulrich said it's been a particularly vexing issue for hospitals and utilities he's worked with that rely on embedded systems "where testing is so difficult."

Corporate Portals Opening Doors to Enterprise Data

Moves should ease integration of data sources for browsing

BY DOMINIQUE DECKMYN

CORPORATE portal vendors are making it easier to access data in various enterprise systems. Last week, Plumtree Software Inc. rolled out a major update of its portal software, and Yahoo Inc. announced a key agreement with Tibco Software Inc.

Many businesses are turning to portals to offer a single, browser-based view of information in disparate data sources. But integrating those data sources frequently requires a lot of custom programming.

Yahoo said it will expand its relationship with Palo Alto, Calif.-based Tibco by investing $4 million in the company and licensing its TIB/Rendezvous infrastructure, which feeds real-time data into Web pages. Tibco said it will launch a corporate portal product based on Yahoo's upcoming Corporate My Yahoo. A beta version will be available next month.

Meanwhile, Plumtree — considered one of the field's front-runners — rolled out Plumtree Corporate Portal 3.0, a major update of its core product. The revamp was praised by analysts for its modular, extensible architecture.

Corporate Portal 3.0 includes Portal Gadgets, which are links to data sources such as relational databases. Customers can develop their own Portal Gadgets, Plumtree said, and will be able to access a Web site where new Gadgets will be added regularly.

The software runs on Microsoft Corp.'s Windows NT, and pricing starts at $100,000.

Mike Cummins, CIO at VHA Inc., which offers central purchasing and other services to about 1,800 health care organizations, said Portal Gadgets were one reason his company chose Plumtree for its corporate portal.

The portal gives employees access to Lotus Notes databases, Microsoft Word and Excel documents on Novell Inc. NetWare file servers and relational data in an IBM DB2 database.

A Crowded Field

Several vendors are rushing new corporate portal products to market:

PRODUCT/DEAL	DESCRIPTION
■ Plumtree's Corporate Portal 3.0	■ Extensible architecture and easier personalization
■ Wall Data Inc.'s Cyberprise Portal 3.0	■ More personalization and database integration
■ Glyphica's InfoPortal 3.0	■ Aimed at sales and marketing staff
■ Yahoo/Tibco	■ Made deal to beef up both parties' corporate portal plans

MORE THIS ISSUE

In the week's Emerging Companies, we look at BroadQuest, an up-and-comer in the enterprise portal arena. **See page 73.**

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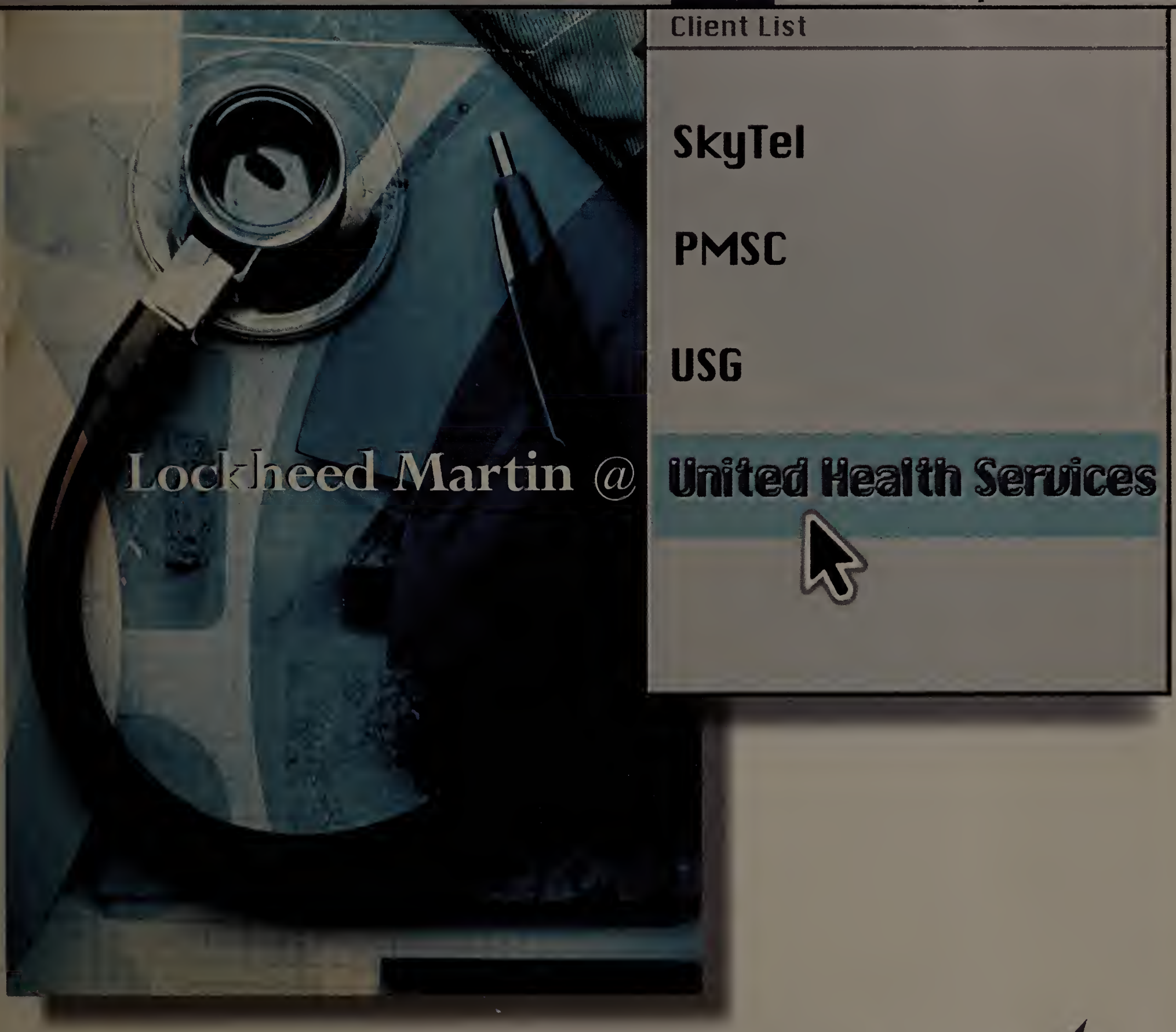

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Ford CIO Saw Steep E-Commerce Climb

On eve of exit, Mathaisel said carmaker faces political, technical obstacles to goal

BY KATHLEEN MELYMUKA

IN AN exclusive *Computerworld* interview on his last day at Ford Motor Co., CIO Bud Mathaisel talked about the difficulties of executing an e-commerce strategy at the automaker.

Supporting CEO Jacques Nasser's mandate to make Ford the world's leading automotive consumer company is "no easy trick," Mathaisel said. He then acknowledged that the technological underpinnings for the endeavor are still "emergent."

Mathaisel resigned July 9 after two years as CIO to "pursue an opportunity in the emerging high-tech industry," the company said. Nasser has announced that Jim Yost, a 20-year veteran of Ford's finance division, will fill the CIO post.

In the interview, Mathaisel outlined the political and technical challenges electronic business presents at Ford. He said the consumer information needed to establish e-commerce relationships with customers resides with the dealers, who feel threatened by electronic-business initiatives from Ford corporate.

MICHELLE ANDONIAN

BUD MATHAISEL says Ford is still facing technological challenges

"We're sensitive to the fact that we value this relationship," he said. "This isn't about disintermediation. It's about our understanding more of the information dealers already have."

On the technology side, Ford is playing catch-up with the consumer companies it wants to emulate. Initiatives to improve customer relationship management through individual Web marketing programs are "in the early stages compared to the best consumer companies," he acknowledged.

John Jordan, director of e-commerce research at Ernst & Young LLP's Center for Business Innovation in Cambridge, Mass., said he sympathized with CIOs who must dive into electronic business from more traditional roles. "It's a dirty job that doesn't fit anybody's previous understanding," he said.

"Since when have CIOs been held accountable for customer interaction?" Jordan asked. "They've always been in the back office making sure the printers run. Now they've got to deal with the customer base. That's a tough assignment out of the blue."

Mathaisel stressed that in other technology-enabled areas like design and manufacturing, Ford has the lowest manufacturing cost per vehicle of any U.S. automaker.

But production is yesterday's challenge, and Nasser is focusing on tomorrow's. He has replaced more than a dozen top executives since he became president and CEO in January, and Mathaisel acknowledged in the interview that the days when Ford "lifers" were the norm are over.

"People join the auto industry because they want a nice reliable place to work," he said. "But it is fraught with uncertainties. You have to be nimble."

Transport Company Dives Into Fish Mart

Web-based app links catch to supply chain

BY DOMINIQUE DECKMYN

Smelling an e-commerce opportunity, transportation company Bax Global Inc. is creating an online trading community that will shave three days off the delivery cycle for fresh seafood and trim costs 10%.

Today, fishermen phone ahead with news of their catch to middlemen who have salespeople call potential buyers. It's an inefficient method that often leads to fish being stored for several days before it reaches the customer.

Bax Global, in Irvine, Calif., is now testing a Web-based market called Baxmart.com, which cuts out the inefficiencies and delays. Chicago-based consultancy Inforte Corp. built the brokerage system for Bax Global, using Microsoft Corp.'s Site Server 3.0.

Baxmart.com will allow suppliers to post their inventory of the day on the Web, saving time and money, said Mike Lucarelli, Baxmart.com's system coordinator. Buyers immediately get an estimated total price, including overnight shipment.

Bax Global will make its profit from the transport — its core business — and a small brokerage fee.

The company hopes that $10 million to $12 million worth of seafood will be sold through the system in its first year, generating $2.5 million in transport revenue. That number is expected to quadruple by the second year.

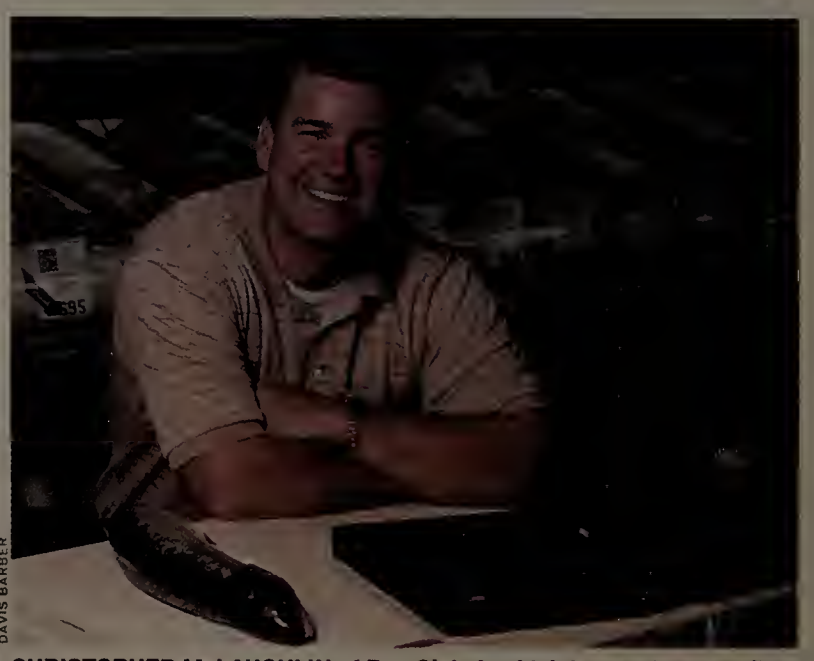
"Hopefully, this will give us access to markets that we can't reach in our present structure," said Anthony DiRocco, vice president and chief operating officer at Aquafarms International, a Miami Lakes, Fla., subsidiary of salmon farmer Almex USA Corp.

In the past, Aquafarms hasn't been able to reach smaller customers, but Baxmart.com can bring in those customers and aggregate smaller orders into large ones, he said.

"This is going to be good for the fish vendors as well as for Bax," said Karen Peterson, an analyst at Gartner Group Inc. in Stamford, Conn.

Peterson said many transportation companies, including Federal Express Corp. and United Parcel Service of America Inc., are eyeing similar opportunities.

"Third-party logistics providers are looking for new opportunities for revenue growth," Peterson said. "And creating these trading communities for e-commerce is one of them."



DAVIS BARBER

CHRISTOPHER McLAUGHLIN of Bax Global, which is creating an online market to link fishermen to buyers

HMO Signs Service Pact For $42M

Mass. group expects to save up to 40%

BY BARB COLE-GOMOLSKI

Cost savings, improved service levels and the ability to focus on more strategic applications propelled Blue Cross/Blue Shield of Massachusetts to outsource the management of its desktop, servers and network to Inacom Corp., according to a top technology executive at Blue Cross.

Some of those services had been previously outsourced to another integration firm, which CIO Mark Caron declined to name. Caron said the old deal was an exclusive arrangement that precluded Blue Cross from bringing other integrators into the mix. The health maintenance organization now plans to divvy up its information technology work and award it to a handful of outsourcers.

Caron said he tapped Inacom because of its quality assurance practices and its broad service offerings.

As part of the five-year, $42 million deal announced last week, the state's largest HMO expects to save as much as 40% over the life of the contract, Caron said.

More important, the agreement will free up some of Blue Cross's 500 IT workers to develop a patient self-service application, Caron said. "We're not really in the desktop computing business anymore."

Omaha-based Inacom will provide on-site support services for operating systems, application and network problems and full server monitoring with remote LAN administration.

Already under way is a complete professional services migration project to upgrade Blue Cross' network operating system, replace 3,000 peripheral devices at the company and configure the desktops for year 2000 remediation across seven campuses.

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ERP Guide: Vendor Strategies, Future Plans

BY CRAIG STEDMAN

For most of the big ERP vendors, the last few months of 1998 and the first half of this year were like a slap in the face.

SAP AG, the leader of the enterprise resource planning (ERP) gang, was hit by moderating revenue growth and flat profits. J. D. Edwards & Co. slipped into the red — which is where Baan Co. has been for three straight quarters. PeopleSoft Inc.'s first-quarter software sales fell almost 50% year-to-year.

Some of the wounds have been self-inflicted; for example, Baan's turmoil began last summer after a series of management missteps.

But the calendar has hurt, too: it's getting late to install ERP systems to fix year 2000 problems, a factor that has dampened demand, and many users have put new investments on hold while they get through the date changeover.

In response, SAP, Oracle Corp. and their ERP rivals are all trying to move beyond the back office, by targeting newer applications such as e-commerce and customer relationship management.

That's a critical transition for them to make, said Steve Bonadio, an analyst at Hurwitz Group Inc. in Framingham, Mass. But he added that it won't be easy to keep their core ERP systems humming while they try to build up their capabilities to compete with vendors that have head starts in the new markets.

Below is a guide to where the ERP vendors are now and where they're trying to go in the future. ◗

Vendor	SAP	Oracle	PeopleSoft	Baan	J. D. Edwards
Headquarters/ Web site	Walldorf, Germany *www.sap.com*	Redwood Shores, Calif. *www.oracle.com*	Pleasanton, Calif. *www.peoplesoft.com*	Barneveld, the Netherlands *www.baan.com*	Denver *www.jde.com*
1998 revenue/ profit	$4.4 billion/$547 million	$8.8 billion/$1.3 billion (fiscal year ended May 31)	$1.3 billion/$143 million	$736 million/$315 million loss	$934 million/$75 million (fiscal year ended last October)
Last quarter results	$1.2 billion/$106 million (Q1 '99)	$2.9 billion/$527 million (fiscal Q4 ended May 31)	$305 million/$7.6 million (Q1 '99)	$176 million/$19 million loss (Q1 '99)	$232 million/$10.4 million loss (fiscal Q2 ended April 30)
Top executives	Hasso Plattner, co-chairman, CEO and co-founder; Henning Kagermann, co-chairman and CEO	Larry Ellison, chairman and CEO; Ray Lane, president and chief operating officer	Dave Duffield, chairman and CEO; Craig Conway, president and chief operating officer	Mary Coleman, president and CEO	Ed McVaney, chairman; Doug Massingill, president and CEO
Recent management and corporate changes	Shifted duties among its five executive board members in June, in part to free up Plattner to focus on SAP's Internet software development projects; Jeremy Coote quit as president of SAP America Inc. in March.	Lane was seen as a potential candidate for CEO jobs at Compaq Computer Corp. and Hewlett-Packard Co., but Oracle this month said he asked to be removed from the list of potential hires by both companies.	Conway was hired in May to take over day-to-day operations from co-founder Duffield, who is also expected to give up the CEO role by next spring. Several other top executives have left this year, and 430 workers were laid off.	Coleman, who joined Baan in a 1997 acquisition, became president last fall and replaced Tom Tinsley as CEO in May. Co-founders Jan and Paul Baan severed all ties last year, and Baan laid off 20% of its workers.	Massingill took over as president and CEO from co-founder McVaney last fall. Early this year, it set up separate industrial and service industry business units.
Status of core ERP system	SAP R/3 is the most widely used ERP system. An R/3 4.6 upgrade is due out later this year with a streamlined and spiffed-up user interface that will be able to run in Web browsers.	The No. 2 ERP vendor, Oracle now only supports browser-based clients with new releases. An Oracle Applications 11i upgrade with a more Web-like user interface is due out in the fourth quarter.	A minor ERP upgrade was released this spring with new HTML and Web-deployable Windows clients. The next major release, PeopleSoft 8, isn't due out until mid-2000.	The latest release, called BaanERP, became available last fall after nine months of delays.	An upgrade of the company's multiplatform OneWorld ERP suite was released last month with new functionality such as payroll management and full support for Web-based user interfaces.
ERP issues to watch	SAP has struggled to tailor R/3 for some vertical markets, especially the apparel and footwear industry.	Many Oracle users still run its older green-screen applications, but they all have to upgrade to the Web-based versions by the end of next year.	Software sales plummeted 44% year-to-year in the first quarter. New manufacturing applications that were added in recent years haven't been widely installed thus far, analysts said.	Baan is still trying to integrate the ERP software with numerous other products it bought in recent years. And users trying to upgrade to BaanERP have had trouble migrating data.	The upgrade is supposed to resolve stability issues in some modules and fill out OneWorld's functionality so it's equivalent to the older AS/400-based WorldSoftware product line.
E-commerce plans	An online procurement application was released this spring. A wider e-commerce line, centered around an Internet portal called mySAP.com, is due out later this year.	Oracle is already shipping a mix of online procurement, sales and customer self-service applications.	Online sales applications are scheduled to start rolling out this summer. An Internet-style portal is also in the works for shipment this year.	An initial set of online sales, procurement and supply-chain collaboration applications was released this spring.	In May, announced plans to develop an Internet-style portal and a series of online sales and self-service applications. For online procurement, it's reselling software developed by Ariba Inc.
Data warehousing plans	SAP shipped data warehousing software last summer. It's developing high-level business planning and analysis software, but release plans haven't been disclosed yet.	Basic analytic applications tied to Oracle's ERP suite were released last year. A set of higher-level business analysis tools is scheduled for completion early next year.	Some initial analytic applications tied to PeopleSoft's ERP system were released late last year. More are due out in this year's fourth quarter, including higher-level tools.	Software for warehousing data from Baan's ERP applications was announced last fall, with ties to third-party analysis tools.	Data warehousing support and initial analytic applications were built in to the latest OneWorld release. Additional applications are being supplied by other vendors.
Supply-chain plans	Advanced planning software became available late last year, but some key features weren't ready until this spring. Several users are now live with pieces of the product.	Oracle now resells advanced planning software from other vendors, but this month it announced plans to ship its own product by the fourth quarter.	PeopleSoft acquired planning vendor Red Pepper Software in 1996, but analysts said sales of the product have been slow thus far.	Baan last fall acquired CAPS Logistics Inc., a developer of logistics planning and scheduling software. It also sells demand and distribution planning tools.	Bought Numetrix Ltd., a maker of Internet-enabled planning software in June. J. D. Edwards also combines OneWorld with planning software developed by SynQuest Inc.
Customer relationship management plans	SAP released an Internet-based product configurator this month and plans to announce a more complete CRM offering in August. But mobile sales and support packages were delayed from this month to year's end.	One of Oracle's top priorities. It has put together a broad front-office suite through a mix of development and acquisitions, and its CRM and ERP lines will be packaged together later this year when both are upgraded.	PeopleSoft sells order management and product configuration tools. But for wider CRM capabilities, it's relying on integration deals with vendors such as Siebel Systems Inc.	Baan's front-office line, centered around products from a 1997 purchase of Aurum Software, is seen as one of its brightest lights.	Bought a small maker of product configuration software in February. For wider front-office installations, it signed a deal in May to resell Siebel's software.
Analyst views	"Their approach to new [kinds of applications] has been ragged. They've taken a piecemeal approach, and that raises questions that their execution is far from laying to rest." – David Dobrin, Benchmarking Partners Inc., Cambridge, Mass.	"Oracle has proven that e-commerce futures sell well. But now the onus is on them to show that they haven't sold a bill of goods to their users." – Josh Greenbaum, Enterprise Applications Consulting, Berkeley, Calif.	"They have products that are far stronger than people give them credit for. But now the spirit of the place has been lost, and the entire management team is gone." – David Dobrin, Benchmarking Partners Inc.	"We're not seeing them as finalists in [many competitive bids], and if you're not even getting into the ball game, it's real hard to win." – Jim Holincheck, Giga Information Group Inc., Cambridge, Mass.	"They've made a virtue out of being a tortoise to everybody else's hare. But at a time when they should be moving up into the No. 3 position [in ERP], they don't seem able to do it." – Josh Greenbaum, Enterprise Applications Consulting

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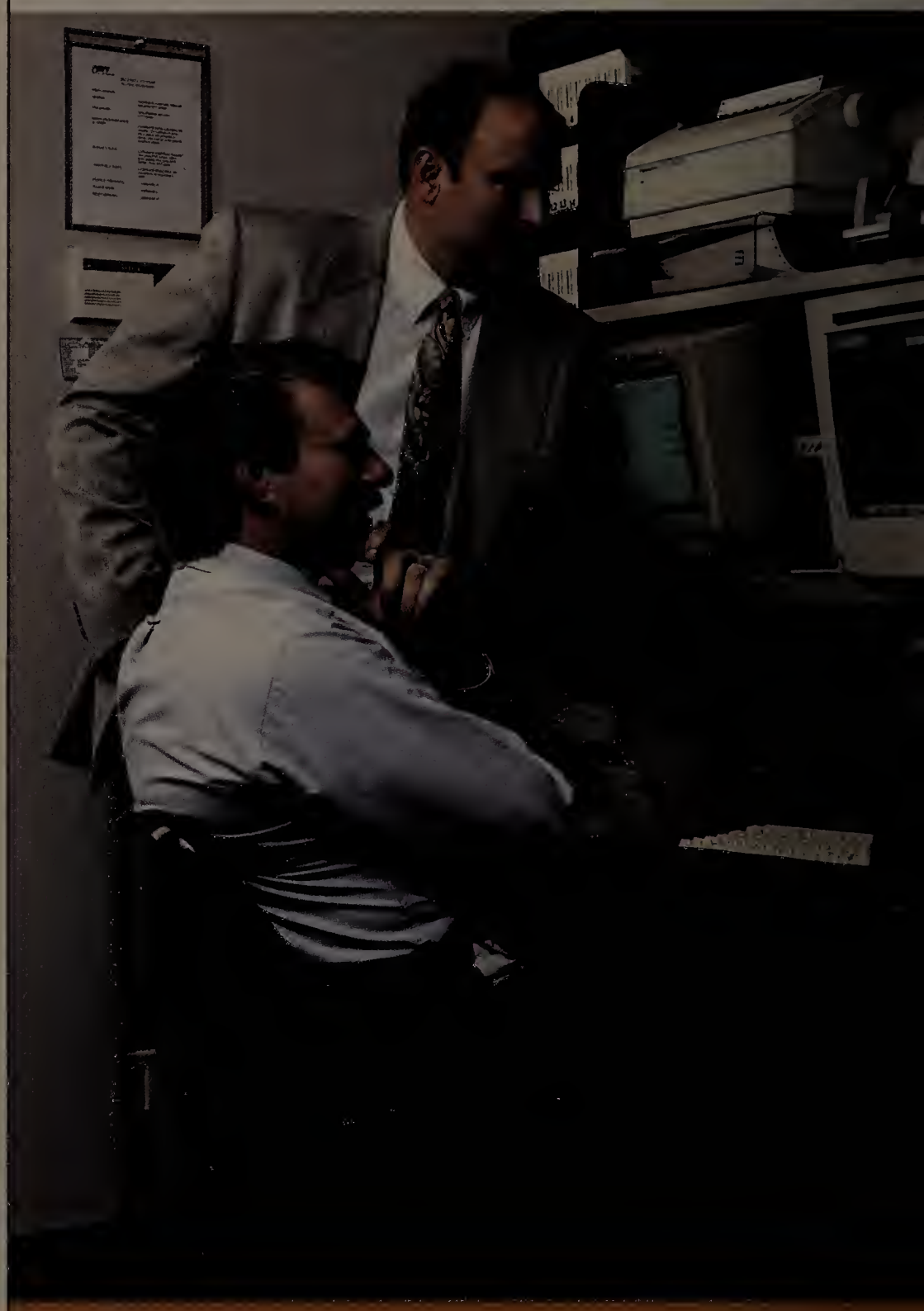

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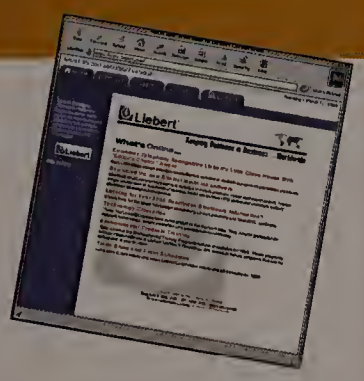

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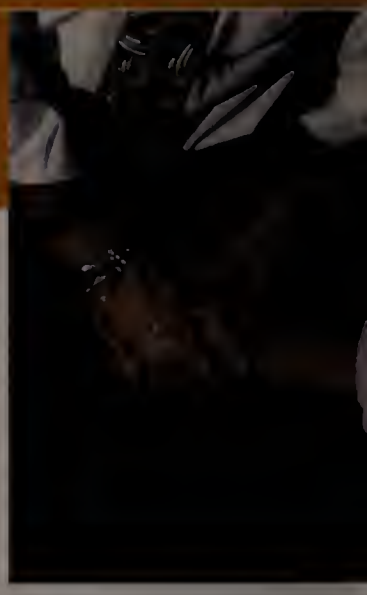

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BY JULIA KING

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"This program is about expanding the reach of electronic commerce," said Carl Rosendorf, senior vice president of marketing at Barnesandnoble.com. "Books and music are those types of products that people love to share their feelings about."

What's in it for Barnesandnoble.com is a cheaper way to acquire new customers — a task that can cost as much as $350 per new customer, according to Martha Rogers, a partner at Peppers and Rogers Group, a marketing consultancy in Stamford, Conn. Another benefit is that the customers are prequalified by friends, family and others acquainted with their preferences.

"Catalog companies have done this for years with [offers to] send a free catalog to a friend," Rogers noted. "This is a more immediate gratification version of the same thing." As for the 5% commission, Rogers said it's a small price to pay to gain new customers.

But one possible downside of the program is the potential for spam because there's nothing to prevent a user from sending out hundreds of e-mails to people he doesn't know and reaping the commission should some buy books from Barnesandnoble.com.

But company officials said they have adopted a "zero tolerance" for spam. Any complaints will be investigated immediately, and commissions won't be paid to people who violate the bookseller's antispam policy, which is listed at its Web site (*www.mybnlink.com*).

"Absolutely, there's certainly a potential for abuse, but I think that's not a good enough reason not to do this," said John Jordan, director of e-commerce research at Ernst & Young LLP's Center for Business Innovation in Cambridge, Mass.

The potential is even greater for acquiring new customers at a rock-bottom cost. "One person tells another, who tells two others, who tells yet another, and the numbers get very big very fast," Jordan said of the program.

Barnesandnoble.com already sells its products through some 120,000 affiliates, which embed links to the bookseller in their Web sites for a cut of the sales. Affiliate commissions typically range between 5% and 7%.

Barnesandnoble.com's partners in the new e-mail program are New York-based Mail.com Inc., an Internet e-mail box provider, and Be Free Inc. in Marlboro, Mass., which sells affiliate marketing software and services. Be Free officials said they plan to offer the e-mail-based program to other online retailers later this year.

Consumer Affiliate Program Pros, Cons

PROS

- Significantly lowers cost of acquiring new customers
- Identifies customers with known preferences
- Builds customer loyalty by awarding commissions

CONS

- Increases potential for spamming
- Decreases retailer's control over brand image

Rivals Go to Court Over Listserv Use

BY STACY COLLETT

In another legal battle that will test the limits of proper e-mail use, DMG Enterprises Inc. has filed suit against association management software rival Advanced Solutions International Inc. (ASI) in Alexandria, Va., for allegedly posting false information about DMG on an industry association listserv.

The complaint, filed June 30 in U.S. District Court in Alexandria, alleges that ASI President and CEO Robert Alves sent e-mail messages to 600 members of the American Society of Association Executives (ASAE) who are on its technology section listserv. The ASAE is a Washington-based trade association with 25,000 members.

In the e-mail messages, Alves allegedly made false statements about DMG's acquisition of another association software firm, Smith Abbott & Co. in Baltimore, and about the Y2K readiness of its software. Alves denied the allegations through a lawyer.

"We were floored [by the postings]," said Tom McGourty, vice president of sales and marketing at DMG in Oakbrook Terrace, Ill. "This was gross abuse of the listserv, at a minimum. But it clearly goes beyond that. We have to address this [to all our customers]. Chances are it could have harmed us" through lost sales.

ASI counsel Gabriel Fineman said no false statements were made by the company or Alves. "It is the policy of ASI never to intentionally say anything incorrect about its competitors . . . to correct any incorrect statements . . . and to compete based on product and service and not misstatements," he said.

The trade association declined comment on DMG's specific charges. But in general, "ASAE does not actively moderate its member e-mail lists for inappropriate postings and doesn't, on its own, undertake editorial control of postings. However, in the event that an inappropriate posting is brought to ASAE's attention, it will take all appropriate action," said spokesman Ken Summer.

Summer said he wasn't aware of whether DMG had complained to ASAE, or what guidelines the group would use to determine what constitutes an inappropriate posting.

Raytheon Co. earlier this year filed suit against some employees who posted disparaging comments about it at a Yahoo Inc. chat board [News, April 5]. The company later dropped the lawsuit.

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IBM Targets Scalable Servers in Sequent Buy

$810M deal is a precursor to 64-bit platform's release

BY JAIKUMAR VIJAYAN

IBM HEDGED its hardware bets with its $810 million purchase of Sequent Computer Systems Inc. last week.

The move will allow IBM to offer enterprise-class Unix systems based on its own Power3 RISC microprocessor and on Intel Corp. technology.

That could prove particularly important in about a year when the first systems based on Intel's next-generation, 64-bit chip architecture start shipping, analysts said.

As expected, IBM last week said it's buying $784 million Sequent in a deal in which IBM will pay $18 in cash for each outstanding share of Sequent common stock. Upon regulatory approval, Beaverton, Ore.-based Sequent — with 2,500 employees — will become a fully-owned subsidiary of IBM.

Beats Competition

Sequent gives IBM servers that scale well beyond those of the competition in the Intel server market. Sequent's servers — which are based on a technology called Non-Uniform Memory Access — now support up to 64 Intel processors while those from most other vendors such as Hewlett-Packard Co. and Compaq Computer Corp. top out at eight.

Dubbed IA-64, Intel's forthcoming technology promises to run both Unix and X86 applications equally well and is supposed to offer better performance at a lower price than current RISC technologies. Though such claims haven't been tested and the first IA-64 chip has been delayed, all of the industry's major hardware and software vendors are busy developing products based on the technology.

"The market is really unsure at this point," of how well IA-64 technology will take off, said Joyce Becknell, an analyst at Aberdeen Group Inc. in Boston. "IBM is playing it safe by being wherever the market wants it to go," she said.

Greater Appeal

Having highly scalable Intel servers also makes IBM more appealing to all-Intel sites, said Chris Willard, an analyst at International Data Corp. in Mountain View, Calif.

"There is always going to a certain part of the market that will require an Intel processor ... if you want to play there you've got to have a high-end system," Willard said.

Purchasing Sequent outright — instead of licensing its products — will give IBM greater control over the long-term technology road map, Willard said.

IBM is already making sure that it has plenty of software and applications to offer users on its 64-bit Intel servers. The company is co-developing a 64-bit Unix version called Monterey that merges elements of its AIX operating system with The Santa Cruz Operation Inc.'s mass-volume UnixWare and Sequent's Dynix Ptx operating systems. ◗

High-End Matchups

How Sequent and IBM's Unix server products stack up:

SEQUENT'S NUMA Q-2000 Scales up to 64 Intel Pentium II Xeon chips per node, NUMA architecture, up to 64G bytes of memory, up to 36T bytes of external storage. Uses the Dynix PTX operating system.

IBM'S RS/6000 S70 Scales up to 12 processors per node, Power PC chips, up to 32G bytes memory, up to 873G bytes of internal disk space. Uses the AIX operating system.

AMD Posts Loss of $162M; President Resigns

Chip battle taking toll on Intel rival

BY JAMES NICCOLAI

Battered by its ongoing price war with Intel Corp., chip maker Advanced Micro Devices Inc. (AMD) reported a second-quarter loss — and the resignation of its president.

AMD's results came as Intel posted results that showed revenue and earnings growth slightly below Wall Street expectations.

AMD's net loss of $162 million for the quarter ended June 27 is two-and-a-half times as steep as the $64.6 million deficit posted in the same quarter a year ago.

AMD, in Sunnyvale, Calif., said its revenue was $595.1 million, 13% higher than the same quarter last year but down 6% from the first quarter. The results were slightly higher than Wall Street analysts forecasted, according to First Call Corp.

AMD said Atiq Raza, its president, chief technical officer and chief operating officer, was planning to leave last week, citing personal reasons. Raza had been viewed as a potential heir to AMD Chairman and CEO Jerry Sanders. Sanders will fill Raza's posts until a replacement is found.

AMD's results exclude a one-time, after-tax gain of $259 million from the sale of its Vantis Corp. subsidiary, as well as restructuring and other special charges of $17.5 million. Including those adjustments, AMD netted a profit for the quarter of $79.9 million.

The company has been waging a fierce price war with Intel; its financial results are largely a reflection of that battle. Average selling prices for AMD's K-6 processor dropped from $78 in the first quarter to $67 in the current quarter, Sanders said.

Intel last week reported a second-quarter profit of $1.7 billion on revenue of $6.7 billion. Revenue was up 14% from the same period last year. Profits were up 49% from the same period last year, but down 13% from the previous quarter. Intel said increased sales of its lower-cost Celeron processor were responsible for below-average selling prices.

AMD will now look to its forthcoming Athlon processor, formerly known as the K-7, for growth. The first Athlon-based PCs are due next month.

Nathan Brookwood, principal analyst at Insight 64 in Saratoga, Calif., said Athlon "is definitely faster than anything Intel has to offer. The world by itself isn't going to beat down a path to [AMD's] door, but if they can get the word out how fast this product is, I think there's a perfectly good chance it will find a good reception."

AMD in the past has competed successfully with Intel in the market for lower-priced machines. But Intel has recently taken advantage of its economies of scale and responded by reducing its own prices. ◗

Niccolai writes for the IDG News Service in San Francisco.

BRIEFS

Wireless Phones Boost Motorola

Motorola Inc. posted a quarterly profit of $273 million on sales of $7.5 billon. The earnings are a vast improvement over the $6 million earnings the Schaumburg, Ill.-based company reported for the same quarter a year ago and beat analysts' expectations. The company credited its digital-wireless phone and semiconductor sales for the steep improvement.

IMac Sales Drive Apple Profits

Strong sales of its popular iMac computer helped drive Apple Computer Inc. to its seventh consecutive profitable quarter.

Apple posted a $114 million profit, up from $75 million for the same quarter last year. Revenue for the period was $1.56 billion, up 11% from the same quarter last year.

Online Retailers Merge

Online computer retailers Onsale Inc. and Egghead.com Inc. said they would merge in a deal worth about $400 million.

Egghead, based in Vancouver, Wash., was one of the first companies to shut down all of its brick-and-mortar stores to focus exclusively on selling online. Menlo Park, Calif.-based Onsale sells computer equipment at a discount and via auctions.

Short Takes

EXCITE@HOME in Redwood City, Calif., said it would purchase e-commerce destination IMALL INC. in Santa Monica, Calif., for about $425 million in stock. . . .

CITRIX SYSTEMS INC., a Fort Lauderdale, Fla.-based maker of thin client/server software, announced a $32 million merger with VIEWSOFT INC. in Provo, Utah. ViewSoft specializes in software for multitier and Web-based application development. . . . Internet service provider EARTHLINK NETWORK INC. in Pasadena, Calif., has agreed to deliver high-speed Internet service nationwide using Digital Subscriber Line (DSL) access provided by UUNET TECHNOLOGIES, a unit of MCI WORLDCOM INC.

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MARYFRAN JOHNSON

E-Tower of Babel

IMAGINE A WORLD where the phone books all competed on how to list our names, addresses and numbers. Some would list by last names, some by first names, some by street addresses. Everybody would talk about how "open" and "interoperable" this screwy system was and how critical "standards" were to its success.

Of course, it would be endless aggravation to find anybody. But that's how network directories work today.

MARYFRAN JOHNSON is executive editor of *Computerworld*. You can contact her at **maryfran_johnson@computerworld.com.**

The average Fortune 500 company has dozens of directories stashed all over a sprawling network. These electronic storage places hold all manner of information resources such as e-mail addresses, employee phone numbers and passwords. The result is an electronic Tower of Babel, with one vendor's directory unable to communicate with another's.

What difference does it make? Well, without robust directory services that can easily exchange information, companies will have a much tougher time dealing securely with one another electronically, sharing customer information effectively or finding breakthrough ways to do business on the Net. The future of e-commerce will be much dimmer than we imagine.

One small glimmer of hope appears in our News story this week about several rival vendors pledging to use the XML formatting language standard in directory products. But only last week, I read with a sinking feeling our front page story ["Vendors Vow to Open Directories"] about how incompatibility and lack of consistent standards still plague users. The good news was supposed to be that a gaggle of vendors (IBM, Novell and Oracle among them) just formed another toothless industry group — the Directory Interoperability Forum — to support open directories. But alas, the group doesn't include other important players such as Microsoft, Sun Microsystems and Netscape.

As a directory architect from Caterpillar put it, "How much sense does it make to say you're working on interoperability, but you won't work on it together?"

Great question. Keep it in mind the next time your directory vendor starts describing his glorious plans for yet another tower. ◗

DEBRA BENTON

Self-promote without losing your self-respect

THE NO. 1 career problem I see in technology managers and executives is that they erroneously think their good work will be respected, appreciated and rewarded. It won't, even if they deserve the recognition. The only way your good work will be appreciated is if you promote it.

I know this message will offend many of you: It means tooting your own horn, selling your project, selling yourself. Most technologists find that distasteful. After all, you're hired to get results, so shouldn't your competence be recognized when you deliver? Or maybe you're like the technologist who told me, "If I were working for a person who didn't know I was doing a good job, that person would be the one at fault."

DEBRA BENTON is author of *Secrets of a CEO Coach* (McGraw-Hill, 199) and president of Benton Management Resources Inc. Contact her at **Debra@BentonManagement.com.**

But that's just wishful, unrealistic thinking. I'm sure you've seen people less deserving than you get more recognition. How did they get to win the beauty contest? Self-promotion, I'll bet, had something to do with it.

It reminds me of a story: In a group of technically oriented managers, one man proudly stated, "I let my work speak for itself." Whereupon his boss leaned over to me and murmured, "Then it better speak louder."

Do not mistakenly think IT people are the exception to the rule in needing to self-promote. Everyone has to, from the CEO on.

And there's a way to self-promote without losing your self-respect: What gets you appreciated is delivering the results in a memorable, impressive, credible, genuine, trusted, likable way.

It really means just eliminating self-sabotaging behaviors such as:

1. Talking too fast. Speed makes what you say seem unimportant, if you're heard at all.

2. Telling too much detail. When asked the time of day, don't explain how to build a watch.

3. Being judgmental toward others. If you don't suffer fools lightly, almost everyone seems a fool. No one likes that.

4. Self-criticism. Talk too much about your inadequacies and others just might believe you.

5. Weak body language and speaking voice. Nervous gestures, poor posture and timid voice tones only detract from your message.

I'm probably telling you the same things your spouse keeps telling you. It's not a question of

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White Paper

JULY 19, 1999

IDC
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Unraveling the Complexity of Internet Commerce Applications

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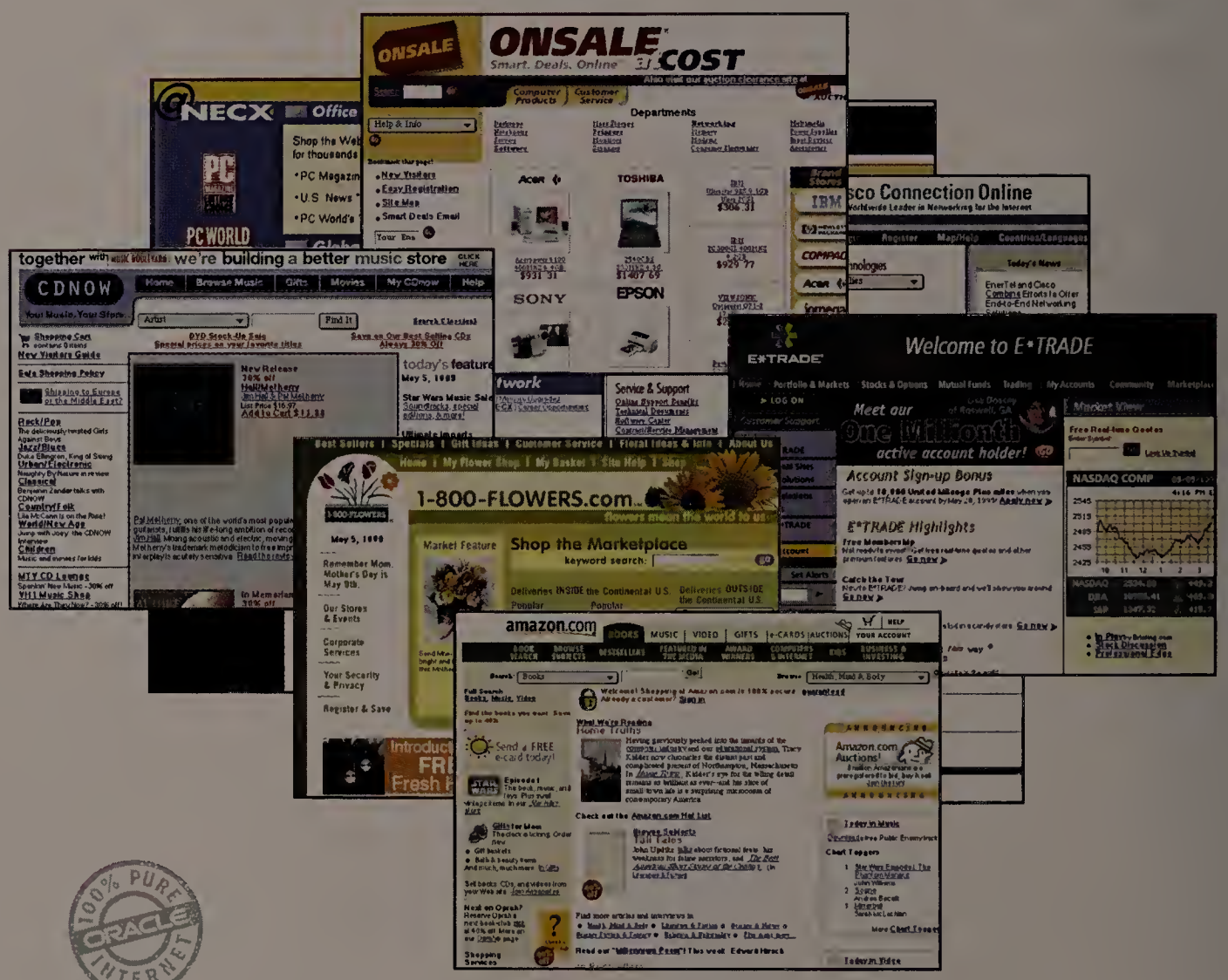

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THE COMPLEXITY OF I-COMMERCE APPLICATIONS

Written by
COMPUTERWORLD
based on research by IDC

With all the new market opportunities that have arisen from the embracing of electronic commerce, this is an exciting time for software vendors. But an exciting time for software vendors means a challenging time for IT managers who have to decide which products their organizations are going to use.

Part of the problem is that the term e-commerce has come to represent such a broad number of actions that it is imprecise. In the vernacular of today, e-commerce has come to be a shorthand way to refer to doing business on the Internet. But over time, as the process of e-commerce expands, the term will become even more imprecise than it is now. Therefore this White Paper has three objectives: to define e-commerce and Internet commerce (i-commerce); to place them within the bigger picture of e-business; and to provide users with a lexicon of Internet commerce that will allow them to sort through the messages of the various vendors.

To successfully deploy e-commerce applications, users must understand that e-commerce is part of a much larger picture, one of business applications and e-business. Fig. 1 on p. 4 depicts the relationship among business applications, e-business, e-commerce and their Internet sub-segments. The business applications in this figure encompass all the IT applications used to run a business—no matter if the application is standalone or connected, if it is for a mainframe or PC, or if it is a word processing or accounts receivable program.

The next largest group of applications are e-business applications. These are the software applications that enable the electronic connection of business operations to customers, suppliers and partners. By some interpretations they also include Web-based connections of business operations to employees.

E-commerce comprises software applications that are directly involved or linked to the application in which an order is placed or accepted, therefore representing a commitment for a transfer of funds in exchange for goods or services. Much of a business's contact with its customers, partners and suppliers is informational in nature. It may or may not result in a monetary transaction but is involved in conducting business. When conducted electronically, these activities are considered e-business. When the order actually is placed electronically, it becomes e-commerce.

IDC defines e-business applications as those that connect, electronically, a business's processes to those in the out-

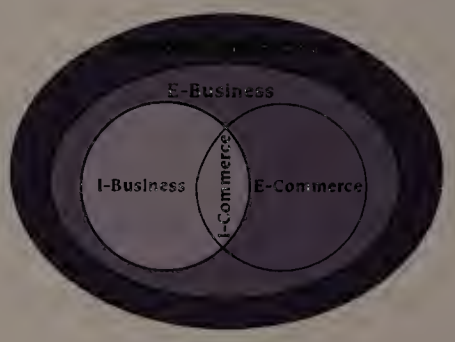
COMPUTERWORLD

This White Paper was created by Computerworld Enterprise Business Solutions. Comments can be sent to managing editor Peter Bochner at (508) 820-8289 or peter_bochner@cw.com. This White Paper, as well as other custom supplements, can be viewed on-line at www.computerworld.com.

side world with whom the organization trades: customers, suppliers and business partners. IDC does not count applications that connect employees to one another as e-business, although we are now developing a framework that may encompass intra-company activities such as employee self-service.) Internet business (i-business) is a subsegment of e-business; i-business applications connect business operations to customers, suppliers and partners over the Internet. E-commerce resides within the scope of e-business.

Much of what is today called e-commerce is actually i-commerce. I-commerce applications are optimized for conducting e-commerce over the Internet. The distinction is important; markets that currently exist (e.g., EDI) should not be overlooked for the sake of convenience and buzzword allure. These markets represent growth opportunities as well as integration opportunities. IDC expects that i-commerce specific applications will at some point include extended technologies, so that e-commerce and i-commerce applications will become one.

Figure 1
Hierarchy of electronic Business Applications and Commerce Applications



Source: International Data Corporation, 1999

Figure 2
E-Business: the Electronic Connection of Business Operations to Customers, Suppliers, and Partners

Source: International Data Corporation, 1999

Sticky issues

Now comes the sticky issue of deciding which applications are part of the e-commerce market. At the core of this discussion is the basic premise of commerce: that there must be a transaction between a buyer and a seller, of money (or its equivalent), in exchange for a good or service. The four components of the commerce process are product presentment & marketing; order preparation & capture; fulfillment and support. The table on p. 6 lists levels of functionality for each market segment. The table will help potential users of e-commerce applications appreciate the functionality in this market and the enabling software.

To qualify as e-commerce software, an application must

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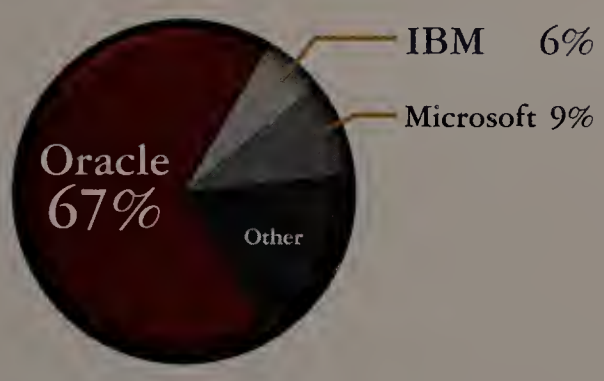

Database Use - Top Web Sites*

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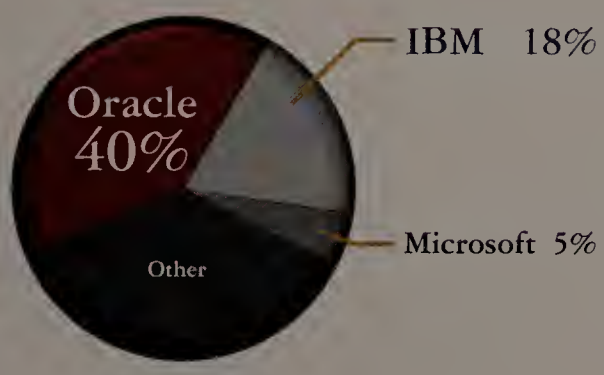

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E-Commerce Environment Components and Functionality

Function: Product Presentation and Marketing

- Demand Creation/Electronic Store Front/Catalog
  - Product Information
  - Product needs definition
    - (e.g., to address xyz consumer/business need, you need this)
  - Automatic price quotes
  - Marketing and promotion
  - Product presentation
  - Shopping cart
- Direct Marketing/Post-Sales Marketing
  - Automated follow-up (post-sales follow-up via the Net)
  - Capture market demographic information
  - Automated promotions based on buying trends
- Add-on Facilities
- Auction

Market Segment: Marketing and Sales

- Catalog
- Merchandising
- Auction
- Personalization

Function: Order Preparation and Capture

- Basic Selling
  - Capture order
  - Calculate cost including shipping and tax
    - (rules-based pricing by customer type)
  - Order confirmation
  - Accept payment
- Advanced Selling
  - Real-time transaction processing
  - Credit card approval
  - Partial orders
  - Back orders
  - Inventory checking
  - Coupon processing
  - Online billing

Market Segment: Procurement and Order Management

- Transaction engine
- Integrated suites
- Procurement
- Electronic bill presentment and payment (EBP&P)

Function: Fulfillment

- Simple Shipping
  - Tax calculation
  - Simple shipping calculation/flat rate
- Complex supply
  - UPS Integration
  - Freight hauling
  - Logistics management
- Fulfillment Structures
  - Direct integration with fulfillment
  - Freight management

Market Segment: Fulfillment

- Logistics management
- Freight management

Function: Support

- Simple Customer Service
  - On-line FAQ
  - Searchable knowledge base
  - Documentation
  - 7 X 24 support/global
  - Return facility/warranty processing and tracking
  - Order tracking
    - (quick link to shipment Web sites to view package status)
  - Credit and returns
  - Maintenance of product history
- Advance customer service
  - Customer buying profiles
  - Mining
  - Automated proposal/contract approval processes

Market Segment: Customer Service and Support

- Customer service
- Web relationship management

be able to take an order commitment, or it must be linked to a component that can take an electronic order commitment (see Fig. 2.) In addition, any product supporting commerce, such as bill payment or marketing, must support a transaction conducted online or exchange funds online.

Therefore, users can consider a vendor's catalog software product as an e-commerce application if it can be tied to the transaction engine and an order can actually be placed. Most electronic catalogs have a shopping cart feature that allows order placement, so they qualify as e-commerce applications. But if the catalog product is standalone without this built-in facility, it is e-business, because it connects a business with its customers, suppliers or partners.

An application that includes electronic customer support software would also be considered e-commerce because it tracks an order placed electronically. A customer can purchase a product online and later access the seller's Website to check on the product's delivery or order status. However, if the seller posted the status of all its orders taken by phone or mail but not Web orders, it would "merely" be considered e-business.

Finally, an application that allows electronic bill presentment and payment is e-commerce because it handles the exchange of funds electronically. Countless companies have sought to reduce the costs associated with billing and collection. By conducting this function online, they can reduce costs and improve customer contact.

Over the next few years, the market for i-commerce is going to soar (see sidebar). For their organizations to succeed at i-commerce, IT managers will need a solid understanding of i-commerce and e-commerce applications.

I-commerce to skyrocket to more than $1 trillion by 2003

Due to the explosive growth of the Internet, Web-based purchasing are skyrocketing. In recent market research, IDC reports the amount of commerce conducted over the World Wide Web will top a staggering $1 trillion by 2003.

"Because of the increase in the number of people who make purchases over the Web, the growth of the average transaction size, and the adoption of the Web as a viable vehicle for business procurement, Internet commerce will grow substantially," said Carol Glasheen, director of primary research and market models at IDC.

According to IDC, the number of users who make purchases over the Web will jump from 31 million in 1998 to 183 million in 2003. Furthermore, there is ample opportunity to expand the 183 million, as it will represent only 36% of all Web users.

Although the number of Web users is increasing in many foreign countries, Internet commerce is currently U.S.-centric. In 1998, 56% of Web users resided outside the U.S.; however, non-U.S. Internet commerce accounted for only 26% of worldwide spending. By 2003, IDC estimates 65% of Web users will be international, and non-U.S. countries will account for just less than half of worldwide Internet commerce.

You can't run an e-business using client/server technology.

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"PeopleSoft's strategy includes a dedicated focus on client/server applications..."
—*Source: PeopleSoft Web Site*

"BAAN IS A LEADING PROVIDER OF ENTERPRISE BUSINESS MANAGEMENT SOFTWARE FOR AN OPEN SYSTEMS, CLIENT/SERVER COMPUTING ENVIRONMENT." —*Source: Baan SEC Filing 5/4/98*

"The Siebel Enterprise Applications are comprised of a broad range of advanced client/server application products..."
—*Source: Siebel SEC Filing 11/13/98*

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And you won't be the one watching from the sidelines as someone gets the respect and the reward that you really deserve. ◗

DAVID MOSCHELLA

Online auctions: The exception — not the rule

auc•tion \'ok-shen\ *n* [Latin *auctio*, literally an increasing, from *augere*, to increase] See AUGMENT.

WITH ALL THE excitement surrounding eBay, Priceline, Amazon and, most recently, Lycos, it seems as if everyone is talking about online auctions. But will the use of auctions substantially increase your business? In most cases, the answer is no. Here's why:

Businesspeople are understandably intrigued by the idea of getting each customer to pay what he thinks a given product is worth. But one of the basic principles of modern economics is that the intrinsic value of a product has almost nothing to do with its price. Economists love to point out that water, although essential for life, is usually very cheap, whereas large-carat diamonds, although of little practical value, are extremely expensive. In competitive markets, prices reflect the equilibrium where supply and demand come into balance.

DAVID MOSCHELLA is an author, independent consultant and weekly columnist for *Computerworld*. Contact him at **dmoschella@earthlink.net.**

Online auctions can augment this reality, but they can't change it. From an economic perspective, auctions will prove most suited to those cases where there's a clear, but typically temporary, market imbalance. These so-called disequilibria usually occur in three main ways: Products can be in significant surplus, they can be noticeably scarce, or they can be isolated from traditional price-setting mechanisms. Each of these three situations affects businesses quite differently.

Today, most businesses think about online auctions as a way to sell off excess inventory. Typically, a surplus consists of either physical goods sitting idly or use-them-or-lose-them assets that will be lost forever if they aren't sold by a certain date. The latter, which include tickets and reservations, are Priceline's specialty. Priceline provides a useful service, but it isn't really an auction; it's more like an online discount bid.

Indeed, e-mail-based, online discounting will likely prove the most popular inventory-clearing alternative. Auctions will mostly be used for one-of-a-kind situations such as bankruptcies and discontinued goods.

Conversely, the initial public offerings of many Internet companies demonstrate how auction-style pricing can thrive when the demand for a product greatly exceeds supply. And yet, although this concept is theoretically relevant to everything from new car models to Furbys and Super Bowl tickets, few companies are likely to follow the stock market's lead. There's still a strong societal taboo against anything that feels too much like scalping. It's just not something you do to your customers or friends. Thus, premium, but fixed, pricing for scarce goods should remain the most standard business approach.

The third potential use of online auctions is to help set prices when it's not really clear what something is worth. Creating new markets is especially valuable for many used goods, and this is where eBay has been so amazingly successful. But even here, auctions are only part of the story: using the Web to bring together buyers and sellers is equally important.

Overall, eBay provides a great service, but its consumer-to-consumer activity probably won't affect your business much more than garage sales or flea markets do.

The bottom line is that the Romans had it right. Auctions can augment your business, but they will rarely become your business. Outside of financial markets and the consumer-to-consumer arena, auctions will prove the exception, not the rule. Business pricing online won't be all that different than it's been off-line for centuries. *Caveat venditor*: Let the seller beware. ◗

READERS' LETTERS

Hard facts missing in Microsoft column?

I AM writing this in response to David Moschella's article, "DOJ vs. Microsoft: What We Know, and What We Don't" [News Opinion, June 28]. I've never written a response to a column, but I disagree with the author so strongly on two points that I am taking the time to write this.

First, the author states, "AOL may have swapped $10 billion of its highly priced stock for the company, but, other than those acting out of pure anti-Microsoft resolve, how many serious Web users still prefer Navigator?"

I feel that I am a "serious Web user," and I strongly prefer Netscape on its technical merits. I cannot count the number of other engineering and computer professionals with whom I've worked who feel the same. It's no wonder Internet Explorer has taken a hold on the Web browser market. It's a matter of convenience, not technical superiority. Mr. Moschella's statement seems to suggest otherwise.

Second, Mr. Moschella states, "The defeat of Netscape has also taught us that it will take more than just an open-source philosophy to successfully take on Microsoft." While it *might* take more; it also might *not*. The case in point is Linux, and time will tell the answer to this question.

I think it best, from a source such as *Computerworld*, to back these opinions up with some hard facts.

Jason Burkholder
Burlington, Vt.

Defense for deceptive calls are 'irritating'

YOUR article "Brokers Get Data Nuggets Through 'Pretext Calling' " [News, June 21] was an intriguing read.

That there are people out there who make money by collecting private information is not news. But that they defend their deceptive calling practices by stating they should not be blamed if bank employees release confidential information without adhering to their internal security protocols is more than a tad irritating.

That's like a burglar claiming that he's not guilty of entering someone else's house and stealing stuff because the owner left the door unlocked.

Bill Simon
Atlanta

For women, reverse discrimination worse

I JUST READ "Going . . . for the gold" [Business, June 7]. I am tired of seeing these superficial analyses asserting sex discrimination, and it's time your publication stopped printing them.

As an executive in IT for 30 years (I hired my first female programmer in 1969, when I was 23), I have observed most human behaviors that can affect IT job performance. Sex discrimination is among the rarest of these.

Reverse discrimination, giving women more benefit of the doubt than is justified, has been a common avoidance behavior for more than 15 years (and, paradoxically, can become a true negative for women). I would bet that is what was really happening in the job offer increase mentioned, and the candidates were not equal.

In an industry where project failure is all too common, and most executives are desperate for success, IT employees need realistic analysis of the difficulties of the job, not self-indulgent accusations of serious charges.

Preston McHenry
Blue Bell, Pa.

COMPUTERWORLD welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to Allan E. Alter, columns editor, Computerworld, PO Box 9171 500 Old Connecticut Path, Framingham, Mass. 01701 Fax: (508) 875-8931; Internet: letters@computerworld.com. Include an address and phone number for immediate verification.

JOHN GANTZ

Don't give up on application rental

TWO ITEMS in the July 5 *Computerworld* caught my eye in such sweet juxtaposition that I really must talk about them. They were the Page 4 story about application service providers looking for customers ["Supply-Chain Vendors Prep Application Hosting Services"] and the page 71 Technology Flashback story about Telenet ["1975: Telenet Becomes Available"].

In Telenet, we had a network designed to support the sharing of applications hosted by a third party. Today, we have shared applications being designed because there's now a network to support them.

JOHN GANTZ is a senior vice president at International Data Corp. in Framingham, Mass. Contact him at **jgantz@idcresearch.com**.

I know it's hard to go gaga over third-party application hosting if you remember what happened to the time-sharing industry that Telenet was built to support: It went out of business, or at least underground. The big "application hosters" of the day, Tymnet, Comshare, McDonnell Douglas and General Electric Information Systems, were all shoved aside by the growing minicomputer business. Then the PC business came along and made a lot of the shared applications obsolete anyway.

I used to cover that market, by the way. And yes, I know the legacy of the time-sharing era is still alive in today's value-added networks, electronic data interchange setups and industry-specific networks. But it's been 20 years since there's been any sizzle in the market. Now vendors are trying to create some, but users aren't showing up.

Shame on you, users. The time is right for a booming business to re-emerge. The networks are reliable, there aren't enough people to implement all the applications we want, and renting applications saves time and up-front investment.

As I mentioned a year ago in my first ramble on the subject, renting applications doesn't necessarily save money in the long term, but then neither does leasing a car. But the benefits of renting can be greater than the benefits of rolling your own.

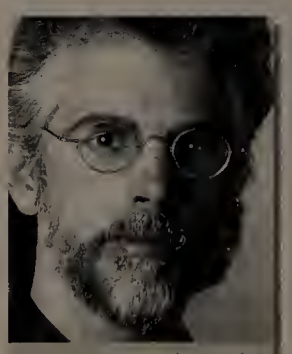
Certainly it's scary to put your critical applications in the hands of third parties, particularly those entering the business for the first time. But it will be scary not to, as well. Given the current labor shortage, you're going to need consulting help for just about any major application you put up. I also believe all major IT shops are entering a period of rapid and unpredictable growth in demand for capacity — thank you, World Wide Web — which will be easier to accommodate under an application-rental business model.

Time-sharing worked well in the era of big systems. It just couldn't accommodate the support demands of client/server computing. In the era of big applications — enterprise resource planning, customer relationship management, supply-chain management, e-commerce — it can work well again. Savvy users will see the value, start experimenting and drive the market forward. So, would-be application service providers and third-party hosters, don't give up. Locate some old-timers and find out what worked and what didn't in contracting, service-level agreements and technology transfer. We've done this once, and we can do it again. ◗

WILLIAM ULRICH

Y2K contingency plans require a long-term view

MOST COMPANIES are building year 2000 contingency plans, but many of those plans have only a short-term focus. I have met too many executives who assume that a business-as-usual atmosphere will prevail once we pass the early stages of the year 2000. Rather than being complacent, business leaders should strive to incorporate long-term Y2K contingency plans into corporate business strategies.



WILLIAM ULRICH is president of Tactical Strategy Group Inc. and co-founder of Triaxsys Research LLP. Contact him at **tsginc@cruzio.com**.

The best way for executives to meet that goal is to look beyond the first few months of the new year. While power and communication failures can't be ruled out, they have become a red herring for contingency planning teams. Long-term projections paint a more problematic picture and could pack a much bigger wallop economically.

Strategic contingency planning should consider fuel cost and availability, transportation delays, supply-chain disruptions, inflationary trends, customer buying power, decreased export demand and international economic crises. Executives must consider impacts on stockholders, business partners, employees, customers and the bottom line for at least two years beyond the century rollover.

There are studies that can help executives meet this goal. One two-year study, posted at *www.gold-eagle.com/editorials_99/rc062199.html*, predicted disruptions in oil drilling, distribution and refinement. It found that engineers couldn't test 75% to 90% of the embedded chips within large oil wellheads and that there are similar risks in pipelines and refineries. It went on to state that a 0.1% failure rate is enough to shut down many large wells and offshore platforms in the U.S. and Saudi Arabia. Secondary findings painted scenarios where fuel prices could rise 50 cents to $1, and gas rationing was a real possibility. Other scenarios suggested that certain goods would be unavailable for a period of time as transportation delays took hold and an economic recession spread. Executives armed with this knowledge might curtail expansion, employ conservative money management strategies and stockpile materials.

Another source of strategic planning input is the year 2000 International Security Dimension Project, commissioned by the Department of Defense and run by the Naval War College. This study, commissioned by the military, outlines broad-based scenarios that could affect businesses, governments and ordinary citizens. Though early findings from this study aren't conclusive, various scenarios outline how related events can cascade into problems that build slowly and subside over a long period of time. This gives credence to the notion that early year 2000 problems aren't the only threat to large and small enterprises.

With new data emerging, executives can begin creating industry-specific, strategic contingencies. For example, Gartner Group said that 66% of health care companies are expected to have at least one mission-critical system failure and that many of the failures will result in litigation. Based on that, health care executives should consider legal strategies along with ideas about how they would pay for any lawsuits that result.

Other industries should also make long-term contingency plans. Property and casualty executives at insurance companies should consider how high-volume, year 2000 claims might affect profitability. One contingency option would be to increase payment reserves. Financial institutions with a high degree of international exposure might consider pulling out of high-risk markets in Asia, Eastern Europe and Latin America.

Similarly, executives at a global manufacturing firm might draft plans to shut down operations in certain third-world countries if long-term infrastructure failures prevail. Food industry executives could work with trade commission officials to ensure that food shipments receive priority in the event of reduced transportation capacity. And small businesses should consider increasing cash reserves in the face of decreased customer demand or increased delivery delays.

Instead of pontificating about whether the power will be out on Jan. 1, business leaders should create industry-specific impact models that can be used as input to executive contingency planning efforts. That's the best way to protect corporate assets in the face of long-term uncertainty. ◗

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Y2K CHRONICLES

What do you do when you think you've accounted for every Y2K problem? Plan for disaster anyway. In Chapter 6 of the Y2K Chronicles, we look at how the companies we've been following are bracing themselves for the unexpected. ▸ 48

Y2K PLANNING

Most companies have a contingency plan to deal with Y2K glitches, but many don't have a serious one, Ed Yourdon charges. If it's not written down, taught to employees and tested with partners, you could be asking for trouble. ▸ 46

RISKY DATA?

Some state officials aren't worried about their own Y2K readiness but are concerned that the tons of data they have to exchange with a host of federal agencies will cause glitches in Social Security and other benefits. ▸ 44

AUDITING RESELLERS

Would you pay for a usability study of someone else's Web site? One video equipment maker did — to help its resellers boost online sales. WebCriteria, which did the study, can also show how your site ranks with competitors. ▸ 38

STUPID USERS?

Everyone knows the story about the user who called the help desk when the computer said to "Insert Disk 2" and he got two disks stuck in the drive. Users couldn't still be that stupid, right? Don't bet on it. ▸ 54

OFFENSIVE MAIL

Ever get a piece of promotional mail that not only didn't sell you on a product, but also grossed you out? Kathleen Melymuka did, and she discusses why inappropriate sexuality is just as bad an idea in ads as in the office. ▸ 53

ON THE BENCH

Every consultant spends some time "on the bench" between jobs. How do you use that time productively? First, look for a new gig before the old one ends. Second, get some training in a new skill set to help land that next job. ▸ 57

NUCLEAR UPKEEP

British Energy's eight nuclear plants all maintain their power-generating equipment in different ways. But the company is launching a $120 million asset management system to standardize and cut maintenance costs. ▸ 42

SILI SHORTAGE

Most metropolitan areas have a glut of single women, but Silicon Valley has a glut of men. That's good news for the women, but most of the men are focusing on work — for now. ▸ 60

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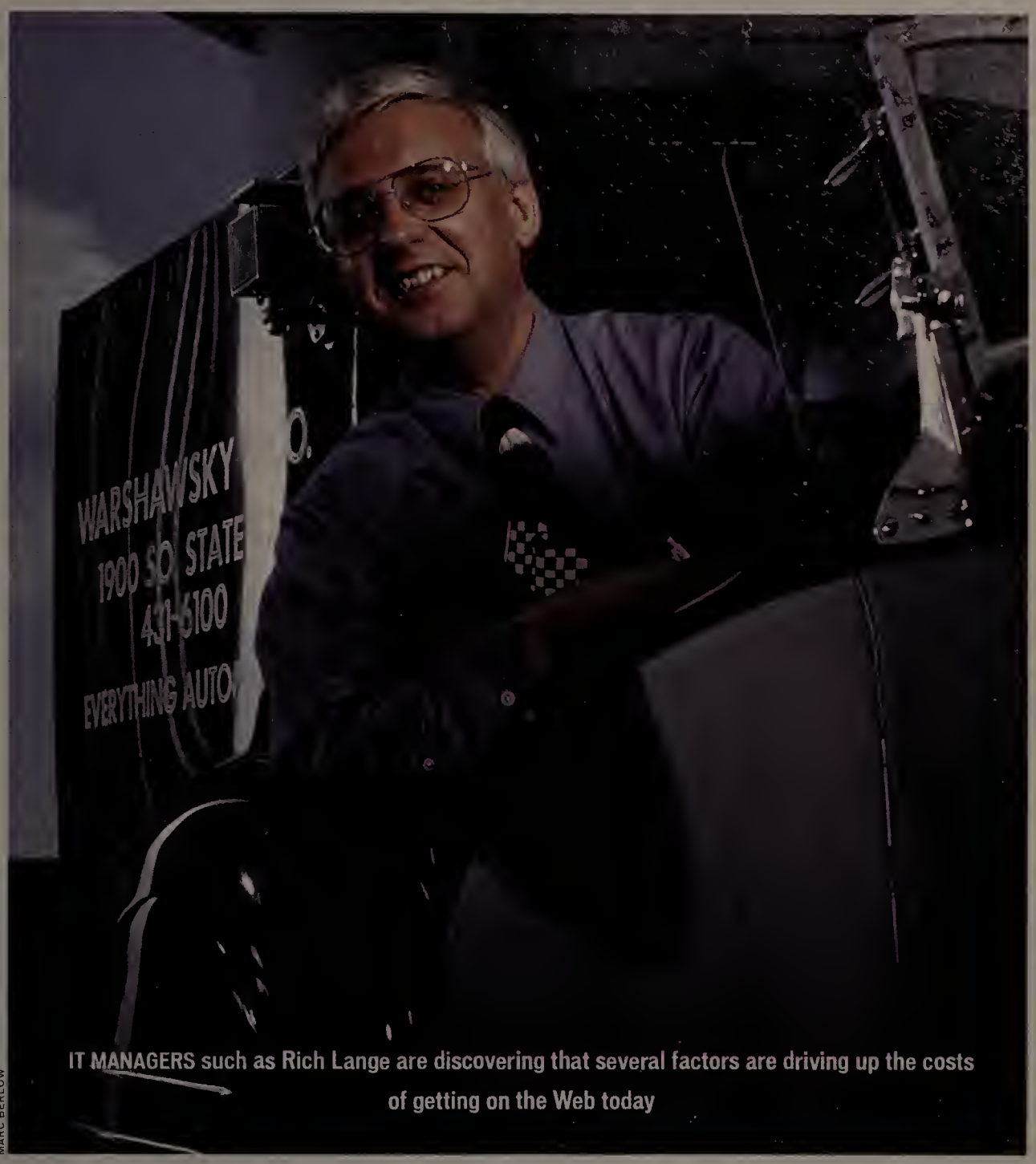

IT MANAGERS such as Rich Lange are discovering that several factors are driving up the costs of getting on the Web today

MARC BERLOW

GOOD WEB SITES AIN'T CHEAP

A GOOD ONLINE PRESENCE costs a mint, but a bad one can cost even more. If you want a lot of traffic on your Web site, IT managers such as J. C. Whitney's Rich Lange (above) are finding that you have to shell out more big money to keep it focused and integrated and to manage content, customers and staff. 40

Manufacturer Audits Resellers To Help Boost Web Sales

Start-up's usability engine evaluates the experiences of users at many sites

BY JULIA KING

COMP VIEW INC., an audiovisual equipment retailer in Portland, Ore., is redesigning its online commerce site with free help from an unlikely source — one of its product suppliers.

"By bringing attention to the strengths and weaknesses of our resellers' Web sites, we're hoping to help them understand what's important to the online consumer," said Nelson Pratt, a director at In Focus Systems Inc., a manufacturer of data/video projectors.

Make no mistake — In Focus is also looking to sell more projectors. The company's banking it can do that most effectively through user-friendly Web sites that download quickly and are refreshed often.

To assess Comp View's performance in those areas, In Focus contracted Internet start-up WebCriteria Inc., which deployed "Max," the company's software-based "browsing behavior agent" that simulates the behavior of a human visiting a Web site [Technology, May 3].

To the Max

Among other things, Max measures how long it takes a page to download information and the consistency of graphics, text and other elements visitors encounter at a Web site. Values are assigned to the amount of time it takes Max to browse through an average page and comprehend the information.

In Comp View's case, those values were then compared to a channel benchmark comprised of similar values gathered from the Web sites of In Focus' 43 other resellers. Following the tests, each of the resellers received a detailed site profile showing how they stacked up against their competition.

Factors Driving Repeat Visitors To Web Sites

High-quality content	75%
Ease of use	66%
Quick to download	58%
Frequent updates	54%
Coupons and incentives	14%
Favorite brands	13%

Base: 8,600 households; multiple responses allowed

SOURCE: FORRESTER RESEARCH INC., CAMBRIDGE, MASS.

The reports also contain specific suggestions for improving individual Web sites, which Comp View is incorporating into its redesign.

"When we look at a competitor's site, we look at content and products," said Scott Birdsall, vice president of marketing at Comp View. "What this did is focus us on other things, like download times and functionality, that drive users to the site."

In the real world, the equivalent might be in-store studies of where within the store a product sells best — vital information online, where effectiveness relies heavily on navigation, said Scott Smith, an analyst at Tera Group LLC in McLean, Va.

The Competition

Companies can see benchmarks for 24 industries or order customized channel benchmarks by going to the WebCriteria site (*www.webcriteria.com*) and entering the Web addresses of the competitors they wish to have studied.

WebCriteria then drops Max into those sites. What comes back is a report based on information gathered from 200 to 900 page views per site, or the equivalent of what a visitor would see in about 10 hours of browsing at each site.

WebCriteria also conducts individual site profiles for $495 each. More complex benchmarks and ongoing subscription-based services cost between $2,500 and $13,000 annually, depending on the frequency and total number of sites studied. ◗

Streaming Media Sites Expand

Downloadable tunes help build audience

BY ANN HARRISON

Online radio stations and other sites that attract viewers by broadcasting live using streaming audio and video are leaping at the chance to build audiences using downloadable music, in addition to hear-as-you-go events.

Streaming media has been around for several years simulcasting concerts and other events. But streaming, high-quality music has been difficult to accomplish because of limited bandwidth and long download times.

A number of music sites, such as New York-based SonicNet Inc., which merged recently with MTV, are now taking advantage of the popularity of the MP3 audio-compression format to offer high-quality, downloadable music as well as streaming audio, video and chat.

"The degree to which the [streaming audio] audience focus has coalesced on downloads is remarkable. It's taken some people in this industry by surprise," said Nicholas Butterworth, president and CEO of SonicNet. Butterworth said his company is considering using both technologies to create a subscription-based service for selling music. "We are making money by selling advertising, but we are going to keep building traffic with streaming audio to promote downloads," he said.

Such independent distributors are crowding the market for downloadable music while major recording labels wait for a secure distribution technology standard before distributing their music online. But the specification published last week by the Secure Digital Music Initiative, promoted by the Recording Industry Association of America, still includes many unanswered questions about the technical details of security and copy management.

Streaming media already requires secure single sign-on, authentication and access controls, which are especially important when selling pay-per-view events, according to Bruce Green, president and founder of Greenhouse Technologies Inc. He said his company is encrypting its streams.

But William Mutual, founder and CEO of Vancouver, British Columbia-based ITV.net, said decrypting on the fly takes more computational power than most users of Intel Pentium II-based machines have to simultaneously decrypt and view the material. ◗

Web Customer Callback Enhances Customer Service

But technology so far slow to take off

BY MATT HAMBLEN

Several Web retailers recently announced they have begun using low-cost Internet customer callback technology to enhance customer service and increase sales.

Customer callback, which allows someone to ask for a return call from a salesperson by clicking on an icon at a Web site, has been around for about 18 months. But analysts said the concept has been slow to catch on, perhaps because of higher costs and conditions imposed by providers such as AT&T Corp. and MCI WorldCom Inc. For example, MCI requires users to make an Internet-based voice phone call to connect to a customer service representative — a capability far from universal among consumers.

But some businesses are finding it useful. Sandbridge Travel Inc. in Virginia Beach, Va., began using Click 1-2-1, a callback service from start-up Click Interconnect Inc. in Miami, three weeks ago.

"A small percentage of our Web site users still don't feel comfortable with giving their credit-card number online, so they just click an icon and one of our travel agents calls them back," said Sandbridge President Matthew Boughton.

Neal Watson, president of Neal Watson's Undersea Adventures in Fort Lauderdale, Fla., said he has used the service for two months, preferring it to text-based chat or e-mail for customer service. "Those are certainly not as good as talking to a human," he said.

Boughton said the service has significantly raised sales because agents talking to customers over the phone can sell hotel or car-rental reservations in addition to airline tickets.

Also, start-up LivePerson Inc. in New York announced it has sold its online text chat service to more than 80 retail Web sites, including Tickets.com in New York.

Chat or callback services usually involve a setup charge of up to $250. Click 1-2-1 costs $14.95 per month, plus the cost of calls; LivePerson pricing starts at $250 per month for each user at the customer site. ◗

MOREONLINE

For *Computerworld* coverage of customer service and links to related Web pages, visit our Web site.
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The High Price Of a Web Presence

Pitching a tent in cyberspace can cost your company millions of dollars, rather than the thousands it cost in the Web's formative days. Why is that bill so high? Here are seven things to think about

BY DEBRA MALINA

IN THE early days of the Web, users expected a basic, static e-commerce site to cost $5,000 to $20,000. Today, everyone realizes that effort is much more expensive. Surveys peg the average cost of an e-commerce site at $1 million — with some of them running $10 million or more.

Why does a Web site cost so much, and what does a Web wanna-be do to build one? Here are seven pricey answers:

1. Strategy

Early adventurers didn't work the Web into their business strategies — and they paid for the oversight. They allowed every department to experiment, often without tracking spending. Experimenters grabbed flashy gizmos, did cool things online — but often netted nothing valuable.

Their sites "grew as a separate life form," says Sophia Drivalas, director of Internet strategy and marketing at the American Medical Association in Chicago.

By contrast, second-generation Web settlers know they need a plan and must pay for their foresight.

"Align your Web plans to your core business strategy — what you want to be to your customers," advises Kathy Biro, CEO of Strategic Interactive Group in Boston.

But such strategizing carries a price tag. Dean Nelson, director at Deloitte & Touche's e-business strategy practice in Boston, says such planning costs a midsize company with $100 million to $1 billion in revenue about 10% to 15% of a $1 million Web-site investment.

2. Back-end integration

If you want older data to be accessible from your site, that's another major expense. Integrating applications with the e-commerce server and its back-end environment can account for 20% to 40% of an initial Web investment, according to Dave Liederbach, director of e-commerce marketing for software solutions at IBM.

Some consultants recommend testing concepts first, using manual alternatives to major automation projects.

At auto parts marketer J. C. Whitney Co. in Chicago, electronic data interchange offers a bridge to online orders while older systems are upgraded, says Rich Lange, manager of Internet operations and development.

3. Content management

Maintaining a Web site requires frequent updates of its information and presentation. That means aggregating data that resides in different systems and managing it — e-business' single biggest ongoing expense. Liederbach recommends tackling Web plans one project at a time and getting feedback before blowing your information technology budget.

4. Marketing

Even the best Web site requires a marketing campaign. The cost of effective marketing "can be a large multiple of what you've spent developing the site," warns Dave Wechsler, president of t3, a Web developer recently acquired by iCube Inc. in Cambridge, Mass.

Mike Lannon, founder of online gift service Send.com in Waltham, Mass., says he raised $10 million in venture capital, primarily for off-line brand advertising. Traditional companies can often piggyback on current marketing.

J. C. Whitney printed its Web address on its catalog and received a strong response, according to Lange. And Soma.com, an online pharmacy just purchased by CVS Corp. in Woonsocket, R.I., plans to leverage CVS' $200 million annual advertising budget.

5. Building and managing customer relationships

You have to work hard to maintain relationships with customers in the impersonal world of cyberspace. That means staffing a call center.

Lange says J. C. Whitney was stunned by the volume of e-mail it got. "You can't get your site ahead of your ability to service customers," he says.

Without an efficient system, fielding e-mail inquiries costs two to eight times more than standard customer service calls, Biro says.

Customer-facing e-business applications also require data management capabilities that allow companies to track visit frequency, types of inquiries, purchase amounts and gaps in attendance — and then offer personalized service.

6. Taxes

Then there's Uncle Sam. Although the federal government has placed a moratorium on certain state-based Internet taxes, that prohibition will expire in October 2001. And the question of an international income tax on Web-related earnings is unresolved: Is a foreign Web server a "permanent establishment" for tax purposes?

Companies should protect themselves by leasing, rather than owning, foreign servers, suggest tax experts Ken Brewer and Roman Sheer at Deloitte & Touche. They say they believe tax havens like Bermuda will eventually become popular for e-businesses.

7. Multiple, evolving skills

To grow their Web sites, companies need people with many kinds of expertise. They need developers of robust applications instead of just HTML programmers; instead of a lone webmaster, they require e-mail staff, merchandisers dedicated to the Web channel and analysts who can understand and predict business implications.

Companies must decide whether to build or buy technology, and whether to hire staffers or outsource. Specialists already are carving out outsourcing niches for hosting auctions or online stores.

These days, midsize companies are likely to outsource technical aspects, like hosting and maintenance, to focus more strategically on the business side of e-commerce, Nelson says. Although some might be able to buy a thriving Internet business (as CVS did with Soma.com), most will have to focus it — and pay for it — one cyberstep at a time. ◗

STEVE MEEK

Malina is a freelance writer in Cambridge, Mass. Contact her at dmalina@channell.com.

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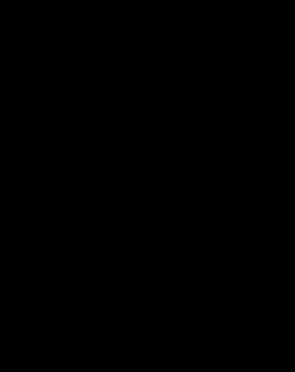

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U.S. Nukes Lag in Y2K Security, Monitoring

Report: 68 of 103 plants compliant

BY THOMAS HOFFMAN

THE U.S. NUCLEAR power industry says that most of the nation's 103 plants are year 2000-ready and that any remaining issues to be resolved won't affect plant safety.

Its critics aren't so sure.

For example, security and plant monitoring systems still need to be fixed at about a dozen plants across the U.S. Those are the same types of systems that caused the infamous accident at Pennsylvania's Three Mile Island facility in 1979, according to Dave Lochbaum, a nuclear safety engineer at the Union of Concerned Scientists, a Washington-based watchdog group.

THE ASSOCIATED PRESS

A MALFUNCTION in plant security and monitoring caused the infamous near-meltdown at Pennsylvania's Three Mile Island nuclear plant

Most nuclear plants "are doing an incredible amount of work" on the year 2000 problem, Lochbaum said. However, there's still a plant or two "that hasn't gotten the message," he added.

He said he's also concerned that the Nuclear Regulatory Commission (NRC), which oversees the nation's 103 nuclear power plants and has been auditing their year 2000-readiness, hasn't set minimum Y2K acceptance criteria for the plants to meet. As such, the Y2K-readiness of the 68 plants that have received a green light from the NRC "is too vague to ensure the public that nuclear plants will run safely," said Congressman Edward J. Markey (D-Mass.).

A spokesman for the NRC declined to comment on the issue, pointing instead to the organization's Web site (*www.nrc.gov*). A press release on that site related to a year 2000-readiness report the agency issued July 7 states that none of the remaining year 2000 project work "affects the ability of a plant to shut down safely."

However, the report goes on to state that if, by the end of September, it appears that a plant won't be able to complete its year 2000 work by year's end, the NRC will take "appropriate" actions, including shutting down a plant if necessary.

Of the 35 nuclear plants that the NRC says still have year 2000 issues to resolve, most will wait until this fall — when demand ebbs — to make repairs, said a spokesman for the Nuclear Energy Institute, a Washington-based industry group. "It just doesn't make a lot of economic sense to pull a plant off-line" during peak usage periods, the spokesman said. ◗

Examples of U.S. Nuclear Power Plants With Outstanding Year 2000 Work

Company: GPU Nuclear Corp.
Plant: Three Mile Island 1
Location: Middletown, Pa.
System in question: Unit 1 Digital Turbine Control System. A BIOS upgrade will be performed during fall outage (Oct. 21).

Company: Carolina Power & Light Co.
Plant: Brunswick 1
Location: Southport, N.C.
System in question: Digital feedwater control system. Remediation is planned for November 1999 outage. System is identical to the Unit No. 2 system that has already been installed and tested and is operational.

Company: Duquense Light Co.
Plant: Beaver Valley 1 & 2
Location: Shippingport, Pa.
System in question: Site Atmospheric Radioactive Effluent Release Assessment System. Used for calculations in support of the emergency plan. System will be replaced by Sept. 30.

Company: Illinois Power
Plant: Clinton
Location: Clinton, Ill.
System in question: 3-D Monicore system. Used to make periodic core performance calculations during plant operations. Scheduled completion date: Sept. 22.

Company: Northern States Power Co.
Plant: Monticello
Location: Monticello, Minn.
System in question: Transversing Incore Probe. Used for periodic monitoring in the core. Integrated testing needed to verify the system is Y2K-ready. Scheduled for Sept. 1.

SOURCE: NUCLEAR ENERGY INSTITUTE'S WEB SITE HTTP://WWW.NEI.ORG/LIBRARY/Y2K_ARCH.HTML

U.K. Power Company Fires Up $120M Revamp

Common asset-management system fuels big changes at British Energy's plants

BY CRAIG STEDMAN

British Energy PLC has a problem: Each of its eight nuclear power plants in the U.K. manages maintenance of its power-generation equipment in its own way.

But that's about to change. To reduce inefficiencies and make it easier to compare maintenance costs and operations, the London-based company is launching a $120 million project to install a common asset-management system at all the power stations.

Half the budget will pay for software and services from Indus International Inc., an asset-management application vendor in San Francisco. But British Energy plans to spend just as much on internal costs such as staff time and training, and the business issues it faces are even more complex than the technical ones. "It's a massive project," said Bill Doig, British Energy's power generation director. "And the most difficult part will be the business and cultural changes and all the other people things."

Up to 3,000 workers are expected to use the system, which is to be rolled out to one plant by mid-2000 and expanded companywide over the next 18 months. The Indus software will provide a standard way to manage maintenance work, track equipment use and measure regulatory compliance.

British Energy is distilling the different operating methods of the plants into a single set of business practices, Doig said. It also plans to reduce its reliance on central technology, finance and maintenance support groups by setting up mostly self-managed work teams.

The company has already done "a hell of a lot of upfront work" to grease the skids for the changes, including more than two years of intense talks with the unions that represent its workers, Doig said.

But everything won't just fall into place overnight. For example, British Energy's station managers will be given the flexibility to implement some of the common operating methods at different speeds.

"Their primary concern is safe operations, so they [each] have to make the call at the end of the day as to the pace of change," Doig said.

Installing software to manage plant equipment and other capital assets is similar in complexity to installing an enterprise resource planning system, said Steve Clouther, an analyst at ARC Advisory Group Inc. in Dedham, Mass. And the $60 million that British Energy is spending on the Indus software is roughly 10 times more than typical asset-management software purchases, he added.

To help the plants manage themselves better, the new system will be tied to central Oracle Corp. finance and human resources applications that were installed this spring, said Roy Quigley, the project's technology manager. ◗

JUST THE FACTS

Enterprise Asset Management Software

What it's used for: Managing the maintenance of plant equipment and other physical assets and predicting potential failures so that companies can do preventive work and avoid downtime.

The market for it: Utilities and process manufacturing industries such as chemicals, petroleum, paper and food. Sales totaled about $1.2 billion last year, according to ARC Advisory Group.

Who sells it: SAP and other ERP vendors support asset management in their plant maintenance modules. Stand-alone vendors include Indus and Bedford, Mass.-based Project Software & Development Inc.

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Data Exchanges a Y2K Concern for States

BY PATRICK THIBODEAU
WASHINGTON

Mary Reynolds, chief technology officer for the state of Illinois, is doing all she can to make sure her state's computer systems are year 2000 ready.

But in the end, her best efforts could be hurt by faulty data or failures in external systems the state must exchange data with to work with federal programs such as Medicare.

On the first day of business in January, "the real issue and real difficulty in predicting the impact of Y2K . . . will really be those [data] exchanges," Reynolds said. Some systems "are completely dependent" on the quality of data they get from other systems, she said.

Many mission-critical government information systems share data across numerous federal and state jurisdictions. A state might have a fully tested data exchange with the Social Security Administration, for example, but processing checks might involve data exchanges with the Department of the Treasury and the Federal Reserve Board — data and links the state can't test.

The results could be disastrous, the General Accounting Office warned in a report last July. Benefit checks could be lost and driver's licenses revoked, and critical weather information could disappear, it warned. The GAO chastised federal and state agencies for making "little progress" on the issue.

Much has changed in the past year. According to the most recently available U.S. Office of Management and Budget data, 75% of the federal systems are compliant or have been bridged — a process that lets systems using different date formats exchange data. A year ago, about half of the federal agencies hadn't even finished initial assessments of the data they're exchanging and the methods of exchange.

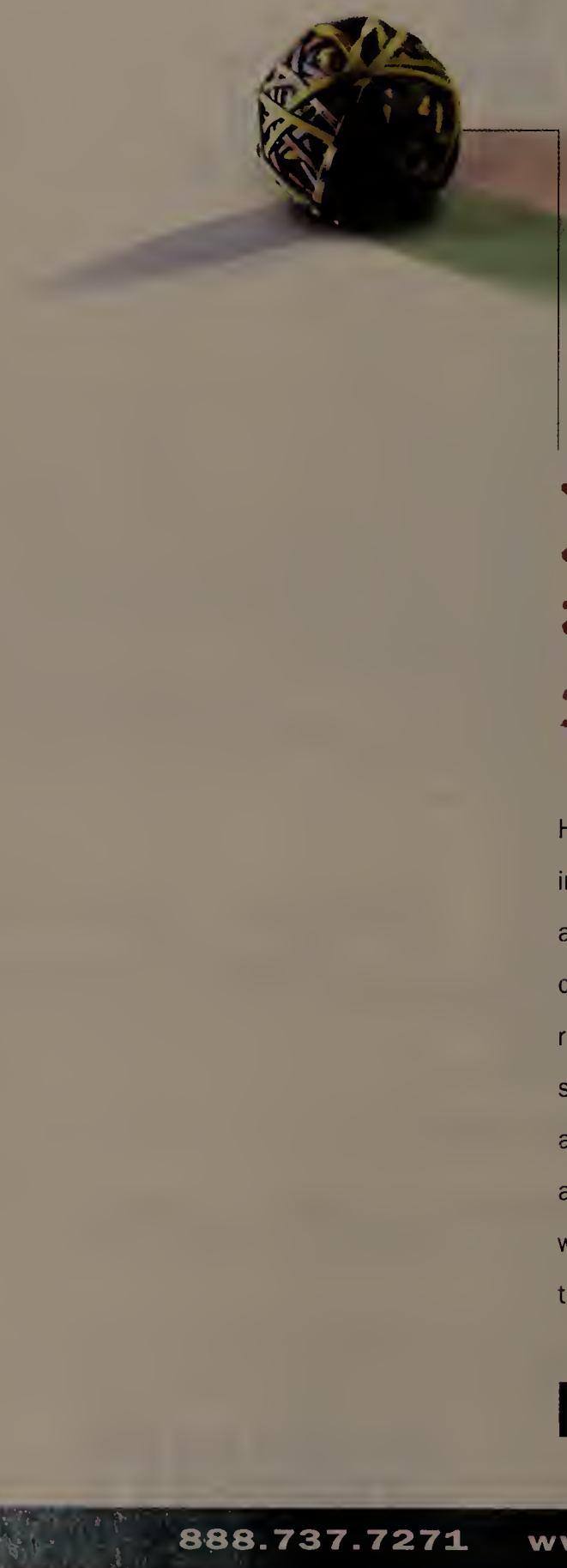
Despite that progress, Art Ranney, who overseas Arizona's Y2K effort, said his state is pressing federal officials for plans to ensure that the $3.5 billion in federal funds it receives annually for programs like Medicare, child welfare and unemployment insurance will continue to arrive regardless of data exchange errors.

However, Mike Benzen, the state of Missouri's CIO and head of the National Association of State Information Resource Executives, said he believes the data exchange issue won't cause serious problems.

Even if bad data is ultimately exchanged after Jan. 1, 2000, systems were designed to discard it. "We've gotten bad data every day, every hour for the past 30 years, and we reject it," Benzen said. "You're not going to feed us data that is going to corrupt the system. It's simply not going to happen."

MOREONLINE

For resources related to the year 2000, such as overviews, articles and reports, visit our Web site.
www.computerworld.com/more



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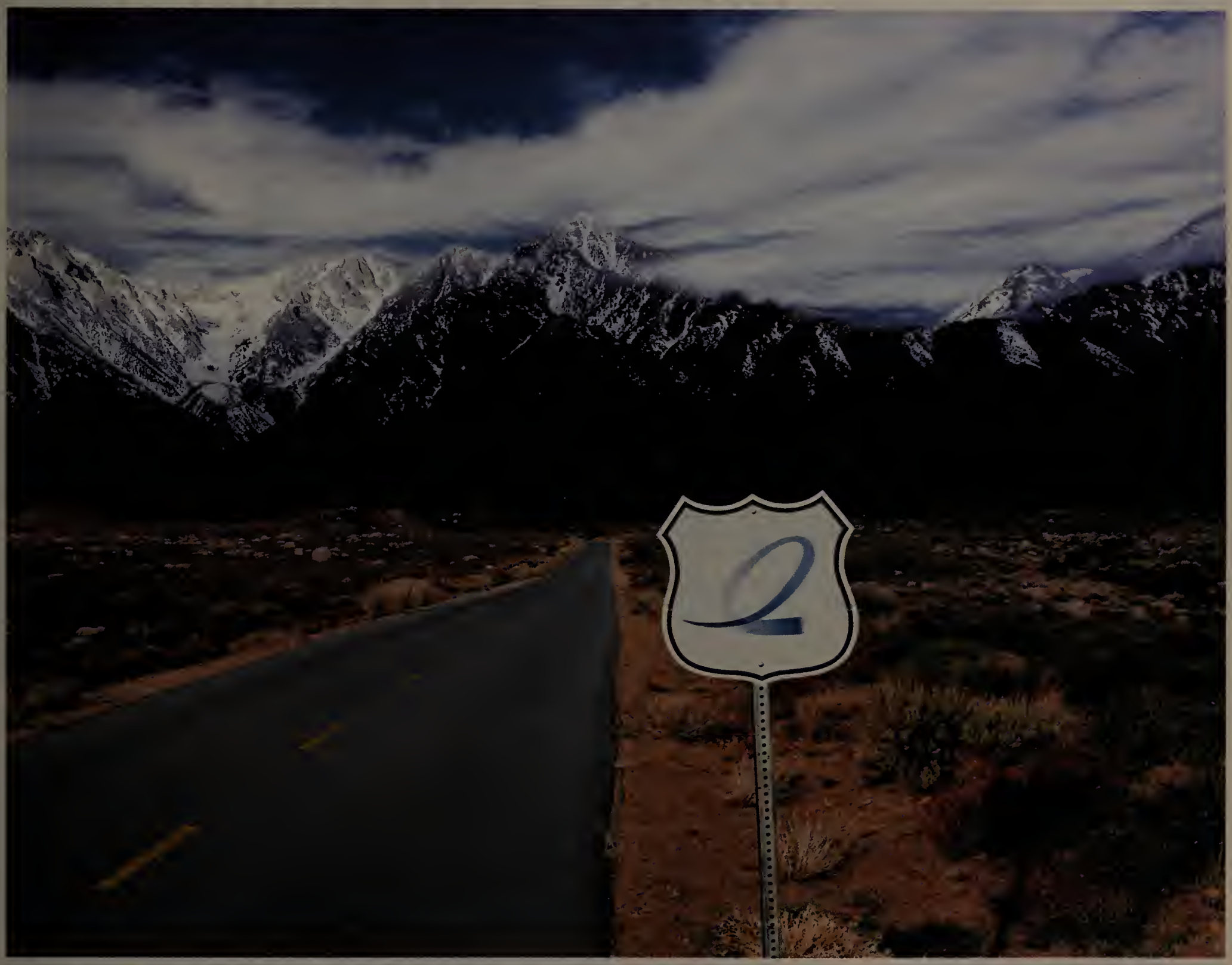

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BRIEFS

Talbots To Go Online

Talbots Inc., which sells women's apparel through catalogs and at its 653 retail stores, said it will launch an e-commerce Web site this fall at *www.talbots.com*.

Talbots contracted Business Data Services, an Internet development company in Glastonbury, Conn., to design the site. Visitors will be able to buy catalog items online and access customer service through the new Web site.

Blue Cross Outsources

Inacom Corp. in Omaha announced a $42 million, five-year technology services contract with Blue Cross/Blue Shield of Massachusetts. Inacom will manage and support all PCs, networks and client/server technology at the health care insurer. The contract includes upgrading the insurer's network operating system and a full, year 2000 technology replacement for 3,000 users, the company said.

Online Ad Merger

DoubleClick Inc. said last week it has signed an agreement to merge with advertising software firm NetGravity Inc. in a stock deal worth an estimated $530 million.

Paths to IT

Noncomputer college majors of IT professionals:

Business	26%
Engineering	14%
Math	10%
Psychology	7%
Finance	6%
Other	37%

Source: INTELIQUEST INC., AUSTIN, TEXAS

DoubleClick, based in New York, runs Internet advertising for more than 1,000 sites (including *Computerworld*'s), offering technology that handles advertising servers, rotation, tracking and other tasks.

NetGravity, in San Mateo, Calif., develops software that helps manage advertising on corporate sites. The two firms' clients include 27 of the top 50 U.S. Web publishers, the companies said.

Web Consulting Online

Intraware Inc. in Orinda, Calif., last week announced the launch of its Solution Provider Network – a Web site where customers can access and select electronic-business consulting services. Consulting companies that are part of the network include Magnet Interactive Inc. in Washington, Navidec Inc. in Englewood, Colo., and Xuma Technologies Corp. in San Francisco.

Fidelity Revamps

Fidelity Investments has revamped its Web site (*www.fidelity.com*) to help customers access financial information more easily. Enhancements include improved navigation, a high-level search engine and news from the CBS MarketWatch.com.

Health Care Outsourcing

Rocky Mountain HMO, a Grand Junction, Colo.-based health maintenance organization, has signed a multiphase application outsourcing contract with Cognizant Technology Solutions Corp. in Teaneck, N.J. Under the first phase of the agreement, Cognizant is implementing Erisco's Facets, a client/server-based managed care administration system. Terms of the agreement weren't disclosed.

ED YOURDON

Smart Y2K planning

MANY ORGANIZATIONS are working hard on contingency plans to cope with the possibility of Y2K disruptions both inside and outside the organization. There's obviously some concern about this, because recent surveys indicate that approximately 85% of large U.S. companies are planning to set up war rooms or control centers as part of their year 2000 contingency planning.

At the same time, many organizations seem rather halfhearted about contingency planning. In particular, it seems that while IT personnel and members of the Y2K project team are very serious about the concept, the business managers in the organization regard it as yet another nuisance associated with the year 2000 problem.

If Y2K disruptions do occur (which seems exceedingly likely) and if the organization is unable to cope with the disruptions, the resulting lawsuits will focus on the possibility of negligence in contingency planning. Conversely, those organizations that have adopted a best-practice approach will not only be able to defend themselves against litigation more effectively, but they'll be far more likely to weather the storm of year 2000 glitches.

Here are some key issues and questions to think about when creating a best-practice Y2K contingency plan:

■ Has your contingency plan been documented?

If the CEO picked up the phone and said, "I want a copy of the contingency plan on my desk in five minutes!" — would it be possible to do so? Unfortunately, the reality is that most organizations are still talking about it, holding meetings about it and forming committees to think about it. If it's not written down, it doesn't exist.

If it's not written down, it doesn't exist.

■ Have your business users participated in and taken a leadership role in the development of the contingency plan?

If not, it's likely that the document consists of a plan to cope with computer failures, but it won't be a "business continuity" plan that accounts for possible failures by vendors, suppliers and business partners. If the business managers are not just as actively involved in the definition and deployment of the contingency plans as the IT people, it won't be very effective.

■ Has it been communicated to your employees?

If not, why not? Obviously, certain aspects of the contingency plan — for example, security plans — *do* have to be kept confidential, but one of the main purposes of the contingency plan is to keep the business going in spite of whatever problems and glitches may occur. That means the sales reps, secretaries, mail-room clerk, receptionist and everyone else in the organization will have to know what they're supposed to do. If the contingency plan hasn't been communicated to all employees in your organization, it's nothing more than a paper tiger.

■ Have training classes been conducted so that your employees will know how to carry out emergency procedures, manual-fallback procedures and other emergency-related tasks?

Has there been a fire drill in which the entire organization operates as if the contingencies had actually occurred? Showing a 500-page manual to an employee is no assurance that he will be capable of carrying out the fallback procedures. That's especially true if the contingency plan requires employees to make decisions or carry out calculations that would normally have been accomplished by an automated system.

■ Is your plan realistic?

Does it assume, for example, that all employees will show up for work even if there are disruptions in utilities, telecommunications or public transportation? The people who develop the contingency plan are often too close to their work to recognize problems like this, and it's a good idea to have a devil's advocate brainstorming session to expose unrealistic aspects of the plan.

For further reading on Y2K contingency planning, the best book available today is *Y2K Risk Management: Contingency Planning, Business Continuity, and Avoiding Litigation*, by Steven H. Goldberg, Steven C. Davis and Andrew M. Pegalis (John Wiley & Sons, January 1999). ◗

Yourdon heads the year 2000 service at Cutter Consortium in Arlington, Mass. Contact him via his Web site (www.yourdon.com).

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YEAR 2000 CHRONICLES

CHAPTER 6

What if there's no power to run the trains or the bank after Dec. 31? Or a run on Oreos around New Year's Eve? The six companies *Computerworld* has followed in this occasional series treat Y2K like any potential system disaster: They plan for the recovery

STEVE CURTIS

CONECTIV

Preparing Paper, Manual Standbys

BY JULIA KING

MIKE CAFFREY, manager of restoration at $2 billion Conectiv, is used to fending off the disastrous effects that wire-chomping squirrels and wayward backhoes can have on the electric utility's 1 million customers. But the year 2000 issue presents some real unknowns.

"The key challenge with year 2000 planning is focusing on systems and areas we might not touch during a normal restoration," Caffrey said.

Payroll is a prime example. Never before has a storm or other disaster caused Caffrey to worry about whether Conectiv's banks would be up and running to deposit biweekly paychecks into Conectiv workers' accounts.

But if that's the case on Jan. 1, Conectiv will have a cash reserve on hand to make its payroll on time — just as it did a half-century ago.

"Fifty years ago, we went to each of our operations and paid in cash. We'll be doing it [again] the same way" if need be, Caffrey said.

Decades-old, precomputerized processes — now called manual work-arounds — are being dusted off in Conectiv's customer call center as well.

That means a return to paper forms, which workers will fill out by hand, then deliver to the nearest dispatcher, who will relay the trouble — via cell phone or an 800-MHz radio communications system — to repair crews in the field.

"We've done business that way before, and we'll be training employees on manual work-arounds to do business that way again" if necessary, Caffrey said.

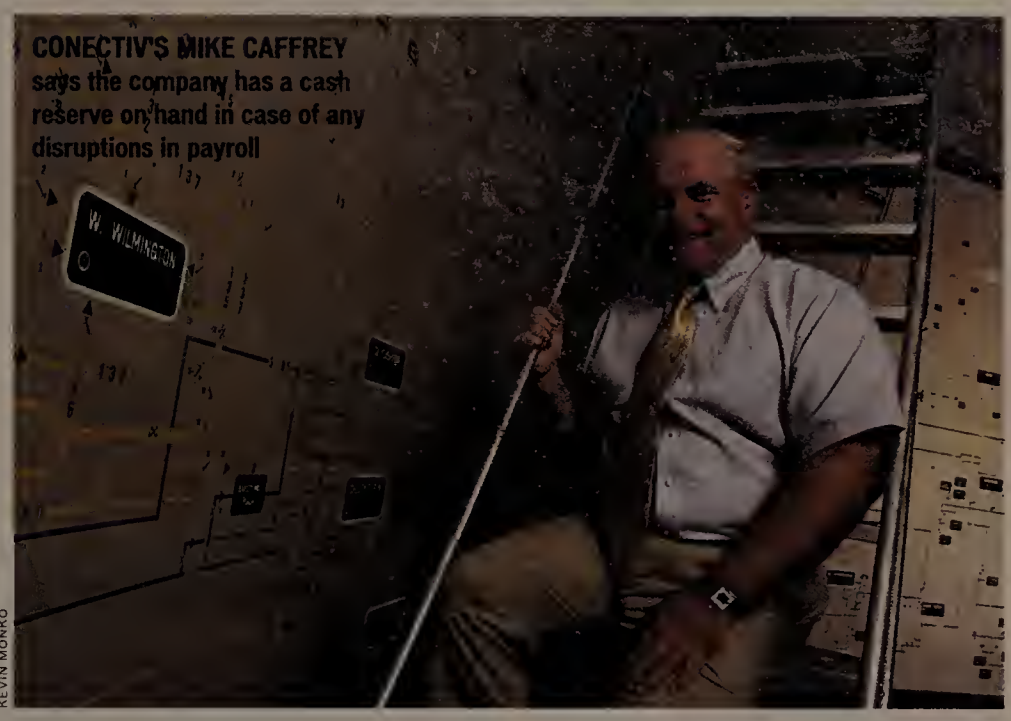
"Things like e-mail are not really mission-critical" — at least not to Conectiv's customers, who are the main focus of contingency plans companywide, according to Chris Arena, Conectiv's year 2000 project manager.

Instead, an e-mail outage would fall into the category of inconvenient interruption to internal business processes. An inability to access an internal accounting system would fall into the same category.

"You may have an [internal] accountant scratching his head and wanting to kill someone in IS, but the customer doesn't care," Arena said. On the other hand, "if a bill is screwed up, then the customer does care," so that kind of problem would be categorized as mission-critical.

In November, Conectiv plans to stage an internal year 2000 drill on manual work-arounds, shutting down all radio and phone systems, he said. The utility, which operates in five states, has a Y2K budget of $15 million.

Manual work-arounds also mean more paper, printing cartridges and copier paper, all of which Conectiv is stockpiling, adding another month's worth of supplies to its customary December and January inventories.



CONECTIV'S MIKE CAFFREY says the company has a cash reserve on hand in case of any disruptions in payroll

KEVIN MONKO

On the power-generating side, the utility also is adding another 30 to 60 days' worth of kerosene and coal to generate electricity, in the event its suppliers can't furnish it with the fossil fuels consumed at its generation stations.

The one area that most concerns Conectiv officials — but that they talk publicly about the least — is sabotage.

Company officials said they expect pranks, crank calls and even vandalism that will be blamed on year 2000 computer problems. "But one of our security measures is not to talk about it beyond that we're working with state and local police," Caffrey said. ◗

> We'll be training employees on manual work-arounds to do business that way again.
>
> MIKE CAFFREY, MANAGER OF RESTORATION AT CONECTIV

UNION PACIFIC'S GAYLA FLETCHER says she fears lots of local outages rather than a full-blown loss of power

UNION PACIFIC CORP.

Training Sights On Power Needs

BY JULIA KING

ELECTRICITY is the lifeblood of a railroad. It powers the thousands of switches and signals across Union Pacific Corp.'s 36,000 miles of track. It fuels its locomotives and the communication systems that link hundreds of dispatchers, engineers, brakemen and other train crew members.

No wonder it's the railroad's biggest year 2000 contingency challenge.

"If electricity goes out, so does our signaling system — and our railroad runs on signals. Trains can't operate successfully without red, yellow and green signals," said Tim Brechbill, year 2000 project manager at the $9 billion, Omaha-based railroad. The company has a $46 million Y2K budget

Union Pacific does have manual procedures — which include dispatching flagmen to crossings — "but if we were talking about an across-the-board outage, it would be a severe constraint on the amount of merchandise you could move," Brechbill said.

Yet it isn't a full-blown outage that most worries Gayla Fletcher, the railroad's top year 2000 contingency planner. Far more likely, she said, are lots of local outages, which the railroad has prepared for by buying 500 mobile backup generators. Plan B calls for tapping Union Pacific's 520 refrigerator cars — which are distributed throughout the entire rail system at any given time — as backup generators.

Fletcher said Union Pacific has also built in redundancies to its onboard and field communication systems, buying 200 additional cellular and satellite telephones that crews can use to communicate in places where power is out.

At its national customer service center in St. Louis, Union Pacific has contracted with four long-distance carriers to furnish service.

On the supplies side, Union Pacific is stockpiling printer ink, paper, computer tapes — "mainly things that will allow us to create hard copies of things we look at electronically," Brechbill said.

In the next six months, printers will be cranking out backup, paper-based copies of critical files and paper-based forms for crew, payroll and other key reports that are prepared electronically.

Other planned contingency measures — all filed away in three-ring binders and stored electronically in a Lotus Notes database — include operating the railroad's regular van transport service for crew members who must be shuttled to and from hotels. The company has also alerted hotels of the potential need for additional rooms for extra crew members who may be dispatched to handle emergencies.

Ironically, it's Union Pacific's computer systems that Fletcher worries about the least. "We have a high level of confidence because we've tested, tested and integrated-tested," she said.

Instead, "the most challenging thing has been to make assumptions" about what is likely to go wrong, Fletcher said. "You work off of various [disaster] scenarios, [but in the final analysis], the biggest challenge is that nobody knows for sure." ◗

Continued on page 50

YEAR 2000 CHRONICLES

CHAPTER 6

Continued from page 49

CANADIAN IMPERIAL BANK OF COMMERCE

Fixing Flaws After Test Run

BY THOMAS HOFFMAN
TORONTO

IT MAY HAVE been June 15 everywhere else, but at Canadian Imperial Bank of Commerce (CIBC), it was Jan. 4, 2000. That's because the Toronto-based bank chose that day to run a dress rehearsal to simulate what conditions might be like on the first business day of next year.

The rehearsal, which included a cast of 500 employees and the bank's chairman and CEO, was peppered with an assortment of what CIBC's David Barlow calls "Murphies," or variables on Murphy's Law.

The simulated factors included electrical brownouts throughout Toronto and New York and closure of the Hong Kong Stock Exchange. Barlow, who oversees contingency planning, and his team even pretended there was a good, old-fashioned Canadian snowstorm.

The purpose of the exercise, Barlow said, was to find out what could go wrong following the date transition from 1999 to 2000 and how the bank would deal with it. Aside from the simulation, the $281 billion (Canadian) bank, which has a $162.2 million Y2K budget, mapped out its contingency plans at the end of 1998. Those included what it will do if either of the following happens:

- Automated teller machines (ATM) stop working. CIBC can centrally monitor which of its 5,000 ATMs are down or out of cash. One fallback plan: Customers can make transactions with tellers at its 1,500 branches.
- Bank vaults lock up. That was one of the first things the bank checked when it launched its Y2K program in 1995. The vaults aren't date-sensitive.

Following its simulation of Jan. 4 Barlow and his team learned that the bank needed to tighten its lines of communication during emergencies. In one instance, a team that represented the bank's stock traders called the chairman's office to book hotel rooms for traders to stay overnight. That's a request that should have gone to someone in administrative services instead, said John Burns, director of the company's year 2000 effort.

"We found some things [from the exercise that] we could do better," Burns said. The simulation was useful because it gave people from different business units a chance to work with one another in advance of the millennium date change, he said.

The drill also gave Barlow and his team a chance to see how chairman and CEO John Hunkin, who took over the top post on June 3, would react when the bullets start flying. If a CEO is new or is a maverick, he might start barking out orders and shatter an otherwise carefully crafted emergency plan. Hunkin, however, "allowed his businesspeople to do what they're supposed to do, and we felt quite comfortable with his understanding of the organization," Barlow said.

Other Murphies that CIBC threw at its staffers were systems problems that some assumed were Y2K-related but actually weren't. "That was one of the biggest lessons I learned [from the simulation]: Even if there are technological challenges on Jan. 4, it doesn't mean that it's Y2K-related," said Mary Lou Frazer, a test participant who works in the bank's public relations office.

Now, Barlow and his team have set their sights on Sept. 8, when they will simulate conditions for the following day; some computer experts say Sept. 9 may be a troublesome date for computers to recognize. For that drill, CIBC will see how its command centers in places like Singapore, London, Tokyo and New York hold up. ◗

C. R. BARD INC.

Double-checking Disaster Plans

BY MARYFRAN JOHNSON

WITH HURRICANE Y2K on the way, there's a new buzz around the old topic of contingency planning at C. R. Bard Inc.

Like most manufacturers, the $1.3 billion medical devices maker considers it standard operating procedure to be ready for all manner of real-world disasters. So the prospect of year 2000-related glitches in anything from phone service to electric power to running water is hardly daunting.

The trick is to get those contingency plans out and dust them off, said Becky Davis, director of corporate audit services at Murray Hill, N.J.-based Bard. The company has an $11 million Y2K budget.

"Y2K would be no different than any other major catastrophe that might disrupt our distribution or supply chain," said Paul Maszczak, Bard's year 2000 project leader and corporate director of information technology. "What you try to do is protect the company and maintain your competitive edge. But if the whole world goes down, nobody's competitive anyway."

Bard has more than 350 electronic data interchange partners and 50-plus suppliers worldwide, so the ripple effects of Y2K are almost certain to activate emergency backup plans somewhere in the company.

As a decentralized company with six divisions abroad and nine in the U.S., Bard relies on each division to master its own plan. "We're really talking about a bunch of minicontingency plans companywide," Davis noted.

During the next several months, Davis will be visiting several divisions to validate their disaster recovery plans. During similar missions last month at Bard's European operations, the audit director heard a lot of concerns expressed about utility failures serious enough to halt production capabilities.

"You can have the products, the people and the machinery all Y2K-compliant, but if you're in France and your state-controlled nuclear power plant goes down, there's very little you can do," she said.

The best plan in some cases is to just hunker down and ride out the storm. "I expect some inconveniences and outages and a lot of nuisance," Davis said, "but it won't be fatal." ◗

MOREONLINE

To see chapters 1 through 5 of this series and to find other Y2K-resources, visit our Web site.
www.computerworld.com/more

JOHN RAE

NABISCO'S JOHN HALPER: "We're identifying internal and external points of failure and developing work-arounds"

NABISCO INC.

Protecting Plants, Distributing Oreos

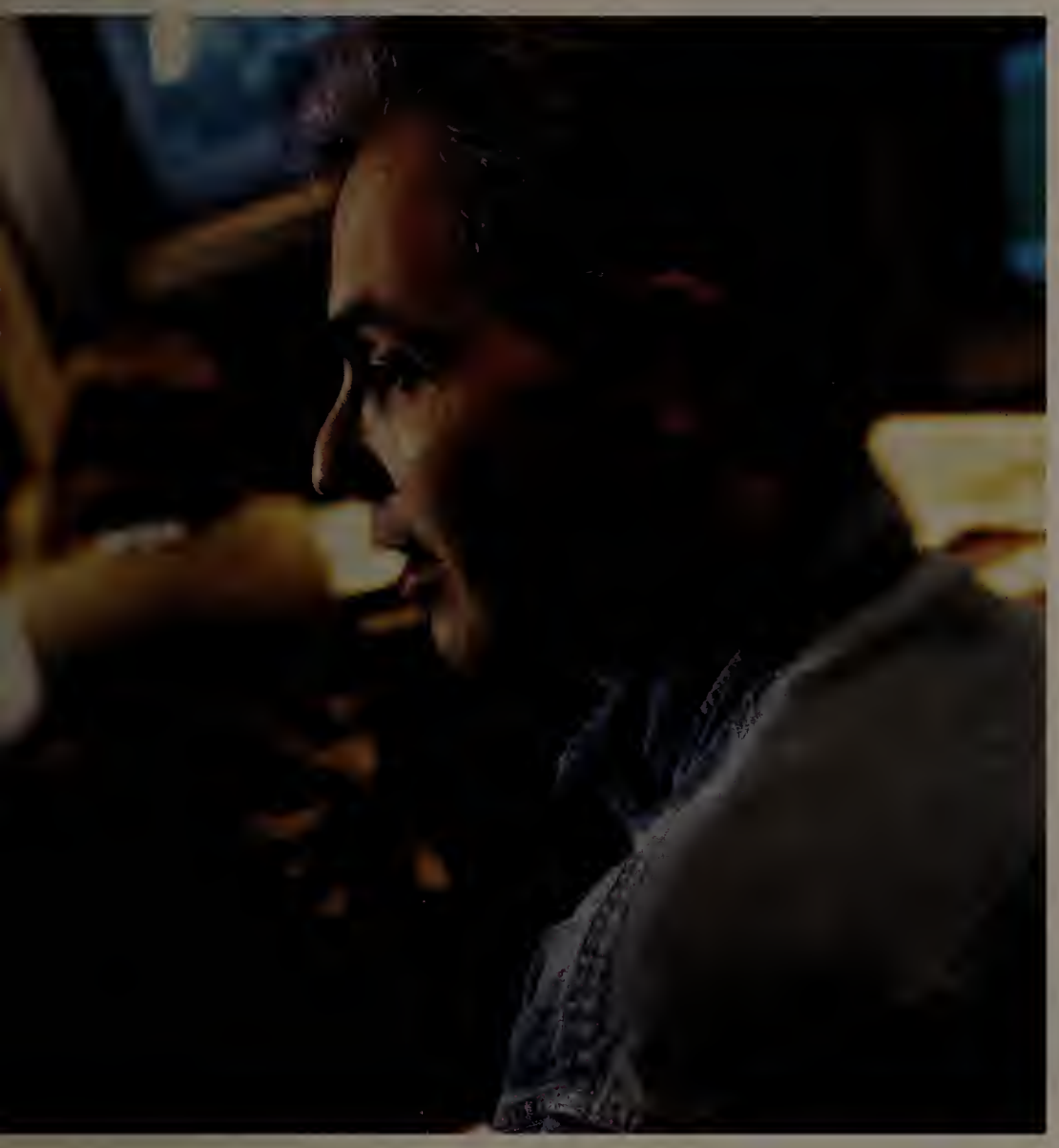
BY GARY H. ANTHES

A NABISCO BAKERY loses power for three days; sugar deliveries are delayed a week; panicked buyers sweep the company's Oreos and Triscuits off store shelves on Dec. 31. But if product inventories are sufficient and wisely placed around the world, those events won't much matter, Nabisco figures.

Making and distributing snack foods at Nabisco Inc. requires myriad suppliers, dozens of facilities worldwide and countless raw materials. But the company made a strategic decision that greatly simplifies its contingency planning for the year 2000 rollover: Focus on finished goods inventories.

"Focusing on finished goods provides a contingency for disruption in supplies," said John Halper, co-leader of Nabisco's year 2000 management team. "A problem with raw materials is [that] there are hundreds of them, so it's much more difficult to ensure a complete coverage."

"Business planning," the first of Nabisco's four-part Y2K contingency plan, which has a total budget of $42 million, is nearly complete. It's a set of 1999 production schedules and inven-



tory targets based on demand forecasts through the end of the year, taking into account the possibility of consumers hoarding food at year's end.

Inventory levels are based on an assumption that outages and glitches will be isolated and last from a few hours to as much as a week.

The second part of the plan, also nearly finished, consists of individual site plans for the hundreds of manufacturing facilities, distribution points and sales offices worldwide, including Nabisco's U.S. data center in Wilkes-Barre, Pa. The focus is on "infrastructure" — electricity, gas, telephone and the like.

Strong Safety Net

Nabisco has confidence in its year 2000 contingency plans because they are built on emergency response procedures that have been tested and in place for years. "We have safety stock for the product. We have backup procedures for every conceivable contingency," said Brian Boden, who heads Nabisco's Y2K efforts in non-IT areas such as manufacturing.

Enhancing those existing plans for year 2000 means considering more complicated scenarios, Boden said. "Suppose there's a fire, but there's also no power? Will your alarm system pick it up? And how will you fight the fire if you have no water pressure?"

Part three of the plan, due for completion in September, deals with "critical business processes" such as supply-chain management, payroll and financial reporting.

"We're identifying internal and external points of failure and developing work-arounds such as paper-based processing or doing some things proactively," Halper said.

For example, Nabisco salespeople now take orders in stores on handheld devices and transmit the orders electronically to the data center in Wilkes-Barre.

Backup methods being worked out include fax and cell phone transmission of orders and even default orders, whereby a store is automatically shipped products based on its buying history.

Other functions may be performed in advance, Halper said. For example, a payroll due to be run the first week in January may instead be run the last week in December.

"Event management," the final part of Nabisco's Y2K plan, deals with companywide communication and coordination as the date rollover occurs. Explained Halper, "As we go through that weekend and begin our start-up on Monday and Tuesday, what is the status of our operations around the world? If a distribution center has a problem, can we switch over and feed our customer from a different center? It's kind of a SWAT team."

MERRILL LYNCH & CO.

Using Experience Gained in Floods

BY THOMAS HOFFMAN

WHAT IF YEAR 2000 problems cut off the water supply at Merrill Lynch & Co.'s World Financial Center campus in New York?

Simple: The world's biggest brokerage would draw water out of the Hudson River.

Contingency planning is nothing new to Merrill Lynch. The firm's branch offices have weathered hurricanes in Florida, floods in the Midwest and the 1993 World Trade Center bombing in New York.

So when it comes to creating year 2000 contingency plans, Merrill Lynch is drawing off its existing models and tweaking them to cover year 2000-related circumstances. Merrill Lynch has a $525 million year 2000 project budget.

"We're always prepared for something to happen," said Edward Goldberg, executive vice president of the operations services group at Merrill Lynch. Year 2000 "is just 'in addition to,'" he said.

For example, even though the firm's primary trading systems have been thoroughly tested and deemed year 2000 ready, if a market data feed for oil futures from an external vendor such as Reuters Inc. should falter, then Merrill Lynch can either go with an alternative market data feed such as Bloomberg LP's or enter market data into the system manually, said James Murtha, senior director of mandated initiatives at the brokerage firm.

June 30 was a deadline the company set for its business units to have Y2K contingency plans developed for all critical functions, such as trading and payroll. Because most of Merrill Lynch's overseas offices rely on third parties to process their payroll, the company has established work-arounds in the event that those service vendors run into problems.

For example, the brokerage is telling its employees to hold on to a copy of their last 1999 pay stub in the event the company has to cut checks and send them in the mail, said Jim Grech, year 2000 contingency planning director at Merrill Lynch.

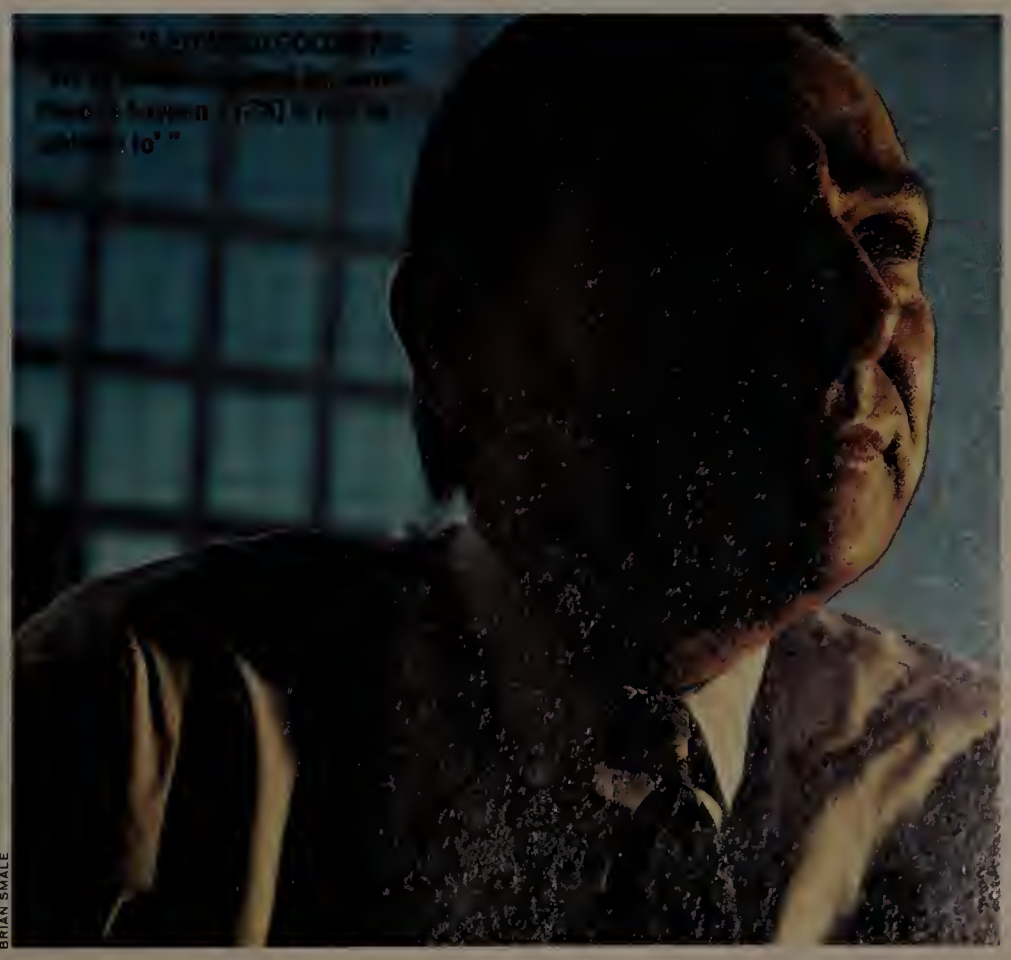
Contingency Plans

If Merrill Lynch's New York offices run into problems with the phone lines, Goldberg said he's not worried. Many New York-based staffers have cellular phones. Just to be safe, the company is considering a plan to establish satellite connections, a decision the firm expects to make in the next few months, Goldberg said.

If there's no electricity, Merrill Lynch has plenty of diesel to fuel its generators, he added.

After all the successful year 2000 tests that the Securities Industry Association has run and the litany of disasters that Merrill Lynch and other brokerages have survived over the years, Goldberg and his team are confident that year 2000 won't throw them any unhittable curves.

"We've been through these things before. We'll get our report card in January," Goldberg said.



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KATHLEEN MELYMUKA/MS. MIS

Boorish pitches won't sell IT to women

I GOT A CONDOM in the mail the other day. It came with an advertisement for some sort of year 2000 service. "Are there leaks in your year 2000 readiness plan?" it asked. There was also a full-color photo of a condom filled with a liquid of unknown origin and — you guessed it — leaking. My initial response: "Eeeeuw!"

I found myself picking up the page gingerly, by the tip of the corner, vaguely worried about getting cooties or something worse as I maneuvered it toward the round file.

Not only was this in revoltingly bad taste, it wasn't even an apt analogy. It was like one of those dirty jokes that's not funny.

Y2K has nothing to do with leaks. Better to send out little whisk brooms ("Is your staff sweeping Y2K problems under the rug?") or boxes of snow packed in dry ice ("Beware the snowballing effect of Y2K.") or "Ghostbuster" backpacks ("Will Y2K come back to haunt you in court?").

But that wouldn't be sexy.

Well, hello! Neither is the condom. Sex may sell products. Plumbing doesn't.

And selling is the point, isn't it? I asked a programmer named Mary Jane what she thought about the ad. "Disgusting!" she said. "I would avoid buying anything from a company that clearly had such bad judgment."

"This is crazy," said Melanie, a software engineer (Last names have been omitted at the women's request). "Ads should focus on the problem at hand."

While we're on the topic of selling with sex, has anybody seen the nude man in the handheld personal organizer ad? That's funny, neither have I.

One company caused quite a commotion in February when it splashed three different poses of a naked woman on billboards around the country. The message was supposed to be that the little handheld model was as "simply elegant" as the big naked model.

The pitch was no bargain to begin with, but at least the company could have thrown in some nice equal-opportunity exploitation. There were male models in other ads, you see, and you don't have to be a marketing genius to realize those billboards were crying out for something "simply rugged." Alas, the men were fully clothed.

But not to worry, a company spokesperson said during the brouhaha over the ads. A male nude was "on the agenda."

Must be a long agenda because we're still waiting.

Male Perspective

Shelly, a software engineer, says it's simple: Vendors believe the people buying the products are men.

"I think a lot of people associate all things computer-related with men, and to some extent, geeky men," she says. "That explains the bathroom humor and beautiful naked women. You can almost visualize the [movie] cast of *Revenge of the Nerds* staring in awe at the naked woman and giggling about the condoms."

She notes, however, that her male colleagues aren't too happy when the shoe is on — or off — the other foot, citing a recent ad depicting the statue of an anatomically challenged man with the wince-inducing question, "Have you lost your dongle?"

"I found that ad way more amusing than my male coworkers," she says.

Which brings me to another ad. The headline: "Women Find Shopping for a Bathing Suit Almost as Stressful as Y2K."

It seems that 50% of American women polled say the Y2K problem is causing them stress, while 45% say buying a bathing suit is stressful. For men, the stress levels were a relatively low 36% for Y2K and a preeningly self-satisfied 5% for the swimsuit.

KATHLEEN MELYMUKA is *Computerworld*'s senior editor, management. Contact her at kathleen_melymuka@computerworld.com.

And the point here is . . . ?

Are we saying that the little ladies are silly geese to worry about Y2K? That women are smart to worry about Y2K but dumb to worry about bathing suits? That women are just too darn fat? That men are smarter? Dumber? In better shape? Better shoppers? Oblivious?

None of the above. The point of the survey was to segue into this: "While we can't make bathing suit shopping a breeze, we can help ease people's anxiety about keeping their computer information safe from Y2K."

Am I the only one who thinks this leap is less than intuitive and more than gratuitous?

"I find it a putdown for women," says Diana, a college IT major.

"I think what offended me was that the advertisers believe women [are] so brainless and shallow that we can't separate business decisions from how we feel about our thighs," Shelly says. "Or maybe that they had to dumb down the Y2K issue and compare it to something they feel all women can identify with."

(By the way, I don't know why men aren't stressed about Y2K, but the bathing suits are easy. Shopping stress is directly proportional to the ratio of skin to fabric. Try on a half-dozen Speedo racing suits, boys, and watch your stress levels spike.)

Granted, pitchsters have to pitch, and it's hard to come up with something fresh. But boorish pitches — especially those built around moronic cheap shots about sex and gender — are off-putting and will be counterproductive in an IT world increasingly populated by women.

It's nice to see ads with a spark of wit, but if you can't manage that, please, just give us the pitch and keep the condoms. ◗

NEW BOOKS

Net Profit: How to Invest and Compete in the Real World of Internet Business

By Peter S. Cohan (Jossey-Bass Inc., San Francisco; 314 pages; $28)
Though billed for investors, this book by the CNBC commentator devotes enough space to analyzing Web business strategies to make it useful for any manager trying to make sense of the world of Web commerce or forge an e-commerce strategy. Chapter 12 is especially targeted to executives.

The Clickable Corporation: Successful Strategies for Capturing the Internet Advantage

By Jonathan Rosenoer, Douglas Armstrong and J. Russell Gates (The Free Press; 170 pages; $26)
Three Andersen Consulting consultants examine 25 businesses that have profited from the Internet and show others how to do the same.

E-Business: Roadmap for Success

By Ravi Kalakota and Marcia Robinson (Addison Wesley Longman Inc., Reading, Mass.; 400 pages; $39.95 paperback)
The authors examine how successful companies have restructured themselves to prepare for e-commerce, and how to place technology at the heart of business strategy. Kalakota has also authored *Frontiers of Electronic Commerce* and *Electronic Commerce: A Manager's Guide.*

Right from the Start: Taking Charge In a New Leadership Role

By Dan Ciampa and Michael Watkins (Harvard Business School Press, Boston; 272 pages; $24.95)
The first six months on the job are critical for a new manager or leader. Harvard Business School professor Watkins and Ciampa, a consultant, provide a framework for getting things off on the right foot.

Adaptive Enterprise: Creating and Leading Sense-and-Respond Organizations

By Stephan H. Haeckel (Harvard Business School Press, Boston; 320 pages; $29.95)
Haeckel, director of strategic studies at IBM's Advanced Business Institute, suggests a way for big companies to stay nimble: Sense what customers currently need and organize to respond rapidly. The book focuses mostly on organizational issues, but technology has a key place in Haeckel's vision.

Y2K Solutions for Microsoft Products

By J. D. Consulting (Dan McGrail, Ellen Faucher, John Gasparini and Julie Rozek) (Charles River Media, Rockland, Mass.; 491 pages; $39.95)
A detailed look at how to identify and fix year 2000 problems in 28 Microsoft Corp. languages and products, including NT Server and SQL Server. The book has tips on remediation tools, a guide to Microsoft's year 2000 site and a CD with additional tools. ◗

You can either laugh or cry about the outrageously stupid things some users do, so let's make it the former. That's why we've prepared an IT version of David Letterman's show with Stupid User Tricks, all nominated by those at the front By Erik Sherman

NO ONE is supposed to say it, but every IT professional knows that users can be — well, really dumb. If that word makes you uncomfortable, how about *dim, slow, uneducated, ignorant, dense, foolish, half-witted, obtuse, doltish, bone-headed, technologically-challenged* or *ridiculous*?

The following stories might seem like the apocryphal urban legends you would see on the Internet, but they're all true. Only the names of the offenders have been eliminated to protect the blatantly guilty. So sit back and be thankful that these people don't all work at your company. At least, not yet.

The Blind Leading the Blinded

Sometimes technology is left to the whims of those who are uncomfortable with it by information technology personnel who should know better.

Bradley Barton tells of a former employer who asked a secretary who had no training to add a new mailbox to the voice-mail system. She sat down with the manual and started following the instructions step by step. Unfortunately, she had opened to Page 1 of the section that told users how to set up the phone system.

Step 1 was: Initialize the phone system. She did.

Suddenly, everything in the phone system — from voice response menus to individual mailboxes — was gone. All the company could do was start from scratch. Ironically, the company specializes in network security.

Be Careful What You Ask For

It was just another day at one of the largest home health care outfits on the East Coast. The agency had just converted its systems to an IBM RS/6000.

> What cable? Phone line? No one told me about a phone line. How do I get one of those?
>
> AN ANONYMOUS END USER WHO DIDN'T QUITE UNDERSTAND WHAT HE NEEDED TO GET REMOTE ACCESS TO HIS OFFICE PC

All the users had received training the previous week and a refresher session that morning. The biggest change was that they each had to enter a user identification and password to gain access to the system.

In midafternoon, Peter Perchansky, who was MIS director at the time, was paged and pulled from a late lunch to help someone who couldn't log in to the system and couldn't wait 15 minutes. Complaining about the system and the help all the while, the user keyed in the ID and password, at which point Perchansky could see the person adding something to the end of the correct second entry.

Why? Because someone else had told the individual to "type in the password . . . and enter."

Letting It All Hang Out

Jesse Josserand was sent to a user site to help solve an intermittent problem with a phototypesetter — sometimes spaces and odd characters would show up in some text. It seemed like everything but the kitchen cabinet had been replaced over a month of troubleshooting and repairs. The most experienced technicians had gone to check it out, to no avail.

Josserand says he was "the new guy who needed to be broken in," and his visit represented the last, hopeless step before changing over the entire system. He watched the machine and operator in question and suddenly realized the problem. The operator was a woman, both well-endowed and nearsighted. She would type, then lean forward to

STUPID USI

ILLUSTRATIONS BY FERRUCCIO SAROELLA

check the results on the data readout. As she did this, she inadvertently pressed some keys with certain body parts. Because type didn't register until the keys were released, the line was garbled only after the operator had checked for errors and immediately before she hit the Enter key.

800 Degrees of Irritation

Those who think that comfort with technology is the same as competence should take note: Greg Sweet once worked for one of the country's premiere business schools. One of the professors, getting ready to leave the office for several days, decided to set his e-mail account to automatically send a reply to any message he received while out. He did this himself, undoubtedly proud of his clever work.

As he was creating this autoresponder, however, the absentminded professor flubbered up and neglected to put filters in place so the automatic reply wouldn't go to the 15 or so mailing lists he was on. Whenever the mail server received a mailing list message, it sent a response saying the gentleman was out of the office. The list server hadn't been programmed to expect such a message, so when it received one it would generate a response saying it didn't understand. The professor's e-mail would then reply to that message with the automatic response.

As new messages came from lists, the traffic increased until the school's e-mail system was handling upward of 800 messages every five minutes and finally crashed, unable to manage the growing traffic. Sweet had to break in to the professor's e-mail account and set up the filters himself.

Temporary Copies

An IT company with offices around the world needed someone to help a manager in a London office. A temp was hired for about three months. Matt Bazzaco remembers that one day the manager handed the temp a floppy disk containing three important Microsoft Word documents. The manager told the temp to make two copies and send one to a second London office and the other to Sweden by overnight express.

The manager heard from the two offices promptly the next day. Yes, the packages had arrived, they said. But why, they wondered, had they been sent photocopies of a floppy disk?

Hang Up and Dial Again

Remote access has become a way of life in corporate America.

Joelle Faulks' department at a former employer was once asked by an end user to configure his PC so he could dial in and get his e-mail when he was away from the office. The support team obliged, and the user left, ready for remote access. When he got home, he started the PC and — no luck.

He called the help line for assistance, and the troubleshooting began, with staff checking the recent configuration. At one point, Faulks asked him whether the modem cable was securely inserted into the wall jack.

The busy executive said, "What cable? Phone line? No one told me about a phone line. How do I get one of those?"

Learning Something New

A few years ago, a new user was having a problem and called her company's technical support line. Her cup dispenser was jammed, she said.

"Cup dispenser?" asked Wade Hyde. Yes, replied the user, the one that comes with the computer and holds up your coffee cup. It was stuck.

Scratching his head and having no idea what the woman was talking about, Hyde went over to her desk to see for himself. She pointed to her CD-ROM drive. "That's your CD-ROM," he explained. "Where's the cup dispenser?"

"That's it," she explained.

Almost afraid to hear the answer, Hyde asked the user where she got the idea to balance a coffee cup on the CD tray. She replied, "Doesn't CD stand for cup dispenser?" ◗

Sherman is a freelance writer in Marshfield, Mass.

ER TRICKS

Competitive advantage: Windows NT on Compaq

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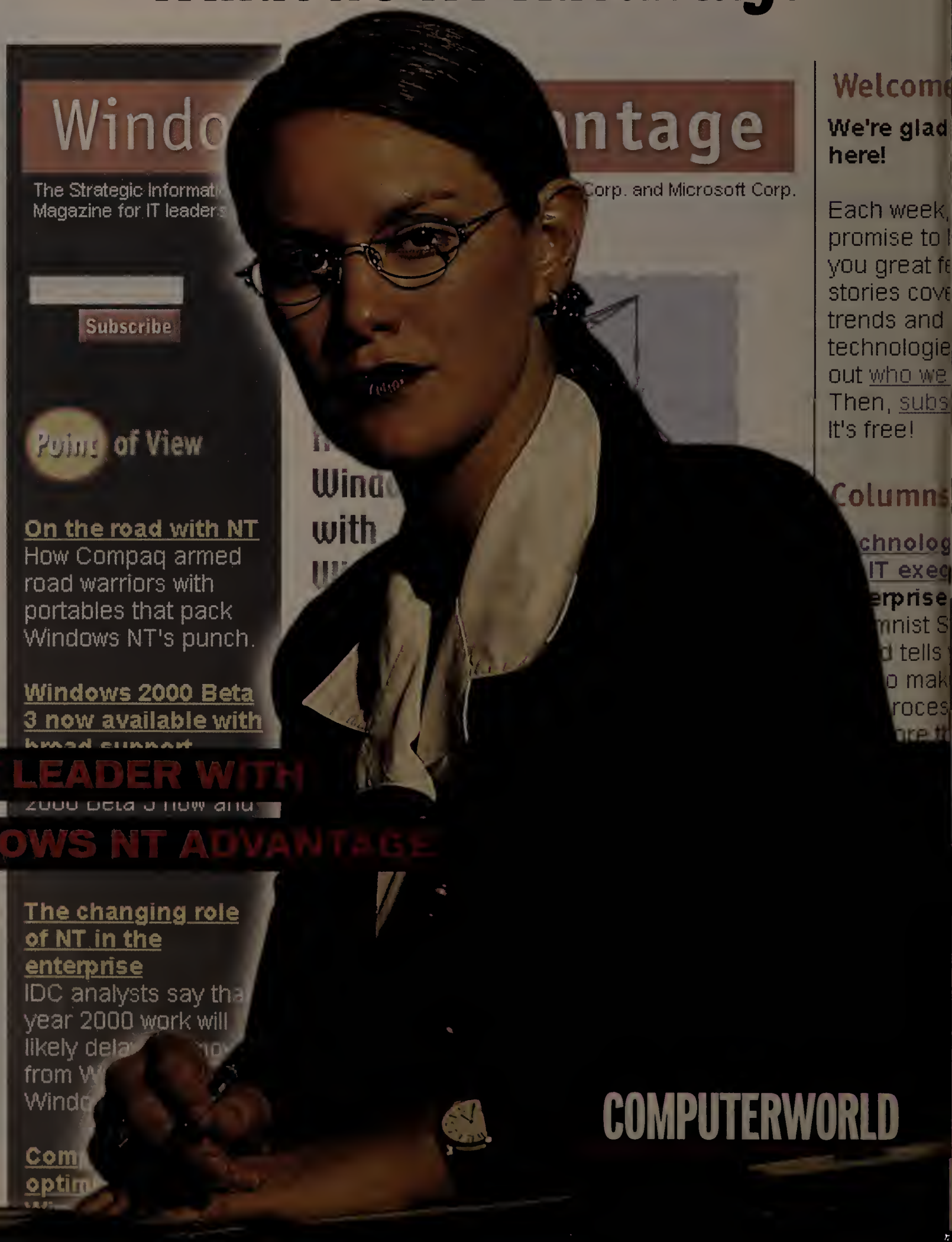

LIFE ON THE BENCH

Consultants discuss how to optimize your downtime – and turn it into the search for the next great assignment By Leslie Goff

LOOKING BACK, information technology consultant David Weber says he should have spent part of his recent, four-month stint "on the bench" getting training in a new skill set. Instead, the W2 consultant for an information technology consulting firm in Omaha spent the time collecting his paycheck, waiting for his agency to come through with a new contract.

During his own three months on the bench in 1995, IT consultant Thomas Hoye, owner of Merrimack Valley Information Systems Inc. in Methuen, Mass., spent the summer lounging around his new family pool instead of expanding his skills.

Obviously, the most important objective during bench time is to line up your next contract — something you should start working on at least a month before the current one ends, consultants say. But those with whom we spoke agree that downtime between jobs is best spent getting training in new skills. Consultants who held back and waited acknowledge that they now regret it.

"I would have reexamined my skills," Hoye says, reflecting on the summer of '95. "I was of the opinion at that point that I would be doing VAX Cobol work until I was 65, so I hadn't put much effort into anything else. Since then, the market and the rules of the game have changed. Every contractor wants to learn what's going to be tomorrow's hot technology: What are people going to offer me $300 an hour to do?"

That kind of thinking inspired Rodney Meredith, an independent AS/400 consultant doing business as MeriSys Consulting Group Inc. in Stone Mountain, Ga., to take a Report Program Generator (RPG) 400 class during his first stint on the bench, which started in May. Meredith has so far specialized in Cobol, but knew "the class would make me more marketable because the majority of AS/400 jobs are in RPG," he says.

Julie Anderson, who's been consulting for nearly a year, is facing the start of her first stint on the bench. She had a contract at Volkswagen Credit in Chicago for six months, but budget shifts may bring an early end to that gig.

Anderson says she's making plans to bone up on some new technologies, but will remain flexible at the same time. Because this will be her first experience between jobs, she concedes that she's a bit anxious about getting the next gig. Anderson's answer: A self-directed project she can work on part time that will build both her skills and her portfolio of marketing materials.

"I want to show potential clients what I can do, so I plan to develop a Web-based application that I [can] showcase," Anderson says. She says she'll work with other contractors who also have bench time coming up.

Walt Sloan, principal at The System Smith in New York, says he also has plans for a personal project that will ready him for future work. Because Sloan — who has 28 years of experience as an IT consultant in financial services — is no stranger to downtime, he sees it as an opportunity. He says he's been planning for his next period of downtime with a plate full of projects.

First, Sloan says he plans to upgrade a Novell Inc. server on his personal, four-PC network to a Microsoft Corp. Windows NT BackOffice server so that he can learn Extensible Markup Language (XML) and a new Microsoft package, called BizTalk, that enables small businesses to implement cost-effective electronic data interchange applications. Sloan says he also has a stack of books on XML that he plans to read; he also hopes to attend several seminars.

Time on the bench can also be a good time for taking care of personal business, Sloan notes. "We all have a list of things that we tolerate, and we need to take time to get rid [of them]," he says. "This time a year ago, I was having gum surgery and hating it — but I knew it was time to take care of it."

Setting aside time for rest and relaxation is just as important, seasoned consulting veterans say. Meredith made a point of taking a two-week breather before starting his RPG classes. And before his next contract, Meredith says he and his wife, who are expecting their first child, will spend at least one long weekend in Florida — the last chance they'll have for a family vacation for a while, he reckons. ◗

Goff is a freelance writer in New York. Contact her at lgoff@ix.netcom.com.

Making the Most Of Your Downtime

Consultants share their best advice:

■ **Be financially prepared for a worst-case scenario.** "Make sure that you have the financial cushion – a minimum of three months – and that will alleviate a lot of stress and anxiety," says Rodney Meredith, an independent AS/400 consultant in Stone Mountain, Ga.

■ **Look early and often.** "Start your next job search as early as you can, even if you have to turn down some assignments because the timing isn't right," Meredith advises. "You never know when someone you had to turn down will come back to you."

■ **When the going gets tough, the tough get going.** If the bills are starting to pile up, be creative about landing your next job. Julie Anderson, who has been consulting for only six months, hasn't yet had a chance to set aside more than two months' pay. She says she may consider offering her marketing skills to a consulting firm at no cost. "I could help an agency gain business, and then act as the lead on the project," she explains.

■ **Look at yourself in the mirror.** "Take a real serious look at your skill set. Ask yourself: Do you have five years of experience, or one year of experience five times?" says Thomas Hoye, owner of Merrimack Valley Information Systems. "You don't have to sign up for a week-long, $3,000 seminar. You can get the college editions of a lot of programming software for less than $100, throw them on your PC, and Saturday mornings, when you're still in your sweats, play around with them. And if you get familiar with them, you can always say in an interview, 'Yeah, I've done some work with that.' "

■ **Beware of unrealistic expectations.** "In reality, you may end up doing very little, so set modest goals," Hoye recommends. "That way you'll get some little victories quickly and easily that will, in turn, spur you on to do something else."

■ **Deal with it.** "Each time we face [time] on the bench, we have a chance to reinvent ourselves," says Walt Sloan, principal at The System Smith. "Look forward to where you want to go. Take this time as nature's way of saying you have a chance to do something new and different. Be very clear about watching your self-esteem, because none of this is possible if you aren't positive and operating at a high level." – *Leslie Goff*

SWOT Analysis

BY STACY COLLETT

IN ORDER TO swat the competition you need to understand SWOT. SWOT stands for Strengths, Weaknesses, Opportunities and Threats. It's a way to analyze a company's or a department's position in the market in relation to its competitors. The goal is to identify all the major factors affecting competitiveness before crafting a business strategy.

"It comes from an old term from the strategic planning field," says Fred Wiersema, co-author of *The Discipline of Market Leaders*. Marketing gurus have taken familiar terms from old "situation analysis" principles — like core competencies (your company's main business), liabilities (weak points that need improvement), customers and competitors — and simply given them a catchy new acronym, according to Wiersema.

"The purpose of strategy is to be really clear before you take the direction. The point of a SWOT analysis is to have the best shot at a grounded plan," says Rashi Glazer, co-director of the Center for Marketing and Technology at the University of California at Berkeley.

DEFINITION

SWOT stands for Strengths, Weaknesses, Opportunities and Threats. It's a four-part approach to analyzing a company's overall strategy or the strategy of its business units. All four aspects must be considered to implement a long-range plan of action.

For example, an information technology department needs to determine the strengths and weaknesses of its people and its technology. It also needs to make sure the IT strategy complements the company's business goals. The department head needs to ask: What is each staff member good at? What are they not good at?

Project leaders also must consider opportunities and threats — or customers and competitors. How attractive is the market or direction they're considering? What's their market share and cost structure?

Delta Air Lines Inc., for example, chose to invest in a multibillion-dollar customer service system that addresses the flight delay problems experienced by 20% of its passengers. Although some companies might think the move was excessive considering 80% of customers have no problems, Delta believed customer service was an important area for increasing market share and that competitors could pose a threat if Delta didn't address the problem.

Another example is Dell Computer Corp., which is a great example of how an IT company can use a SWOT analysis to carve out a strong business strategy, according to Glazer.

Dell recognized that its strength was selling directly to consumers and keeping its costs lower than those of other hardware vendors.

As for weaknesses, the company acknowledged that it lacked solid dealer relationships.

Identifying opportunities was an easier task. Dell looked at the marketplace and saw that customers increasingly valued convenience and one-stop shopping and that they knew what they wanted to purchase. Dell also saw the Internet as a powerful marketing tool.

On the threats side, Dell realized that competitors like IBM and Compaq Computer Corp. had stronger brand names, which put Dell in a weaker position with dealers.

Dell put together a business strategy that included mass customization and just-in-time manufacturing (letting customers design their own computers and custom-building systems). Dell also stuck with its direct sales plan and offered sales on the Internet.

"Clarity in strategy works. Fuzzy strategies fail. Most strategies fail because they don't have a clear direction," Glazer says. ◗

Analyze This

To help you do a SWOT analysis, use these sample questions as a guideline:

STRENGTHS:
Define areas you excel in, such as the company's core competency and resource analysis

- ✓ *What does your company do well?*
- ✓ *How strong is your company in the market?*
- ✓ *Does your company have a clear strategic direction?*
- ✓ *Does your company's culture produce a positive work environment?*

WEAKNESSES:
Evaluate your liabilities

- ✓ *What could be improved at your company?*
- ✓ *What does your company do poorly?*
- ✓ *What should be avoided?*
- ✓ *Is your company unable to finance needed technology?*
- ✓ *Do you have poor debt or cash flow?*

OPPORTUNITIES:
Analyze your customers and market attractiveness

- ✓ *What favorable circumstances are you facing?*
- ✓ *What are the interesting trends? Is your company positioned to take on those trends?*
- ✓ *Is your company entering new markets?*
- ✓ *Is your company advanced in technology?*

THREATS:
Check out what your competitors are doing and assess other potential challenges

- ✓ *What obstacles do you face?*
- ✓ *What is your competition doing?*
- ✓ *Are the required specifications for your products or services changing?*
- ✓ *Is changing technology threatening your position?*
- ✓ *What policies are local and federal lawmakers backing? Do they affect your industry?*

AT A GLANCE

SWOT Breakdown

SWOT identifies the internal and external factors that affect an organization. Here's the breakdown of SWOT by internal and external variables:

INTERNAL FACTORS
(Strengths and weaknesses)

- A corporate structure, culture and resources
- Shareholders
- Customers
- Competitors

EXTERNAL FACTORS
(Opportunities and threats)

- Politics
- Technology
- Society
- Economics

Are there business terms you would like to learn about in QuickStudy? Please send your ideas to QuickStudy editor Stefanie McCann at stefanie_mccann @computerworld.com.

MOREONLINE

For more information on SWOT analysis, visit our Web site.
www.computerworld.com/more

e limiting

Need an alternative to the one-size-fits-all e-commerce trap?

There is a company with a range of e-commerce products that gives you room to grow. Intershop.

www.intershop.com/grow

JOE AUER/DRIVING THE DEAL

Is going direct going cheaper?

DELL HAS MADE BIG BUCKS ignoring the traditional PC distribution model by avoiding middlemen and selling directly to corporate customers. By eliminating the reseller level, Dell claims to save its customers money. Dell's extraordinary success with this approach has caused the other major computer makers to sit up and take notice. Many are attempting to adopt a similar direct-sales model to compete with Dell and respond to customer demand.

While it's true Dell prices may be lower than those offered by resellers, there are other financial factors worth looking at when you structure a deal:

Look at the total cost of ownership (TCO). Is that really lower to the customer? One consumer products company, on the verge of a large PC refresh, did extensive research, then negotiated and selected vendors. Its research indicated the jury was still out on whether direct-to-customer PC companies provided a lower TCO.

Some customers may feel there are innate risks and implications in dealing directly with a direct-to-customer computer maker. For example, that particular customer felt the risks and intangibles outweighed any favorable price break up front. If you're striking a deal with such a company, as always, negotiate adequate protections against these risks. The issues include the following:

Variable components. For its standard PC models, resellers may purchase a variety of components on the spot market in order to provide lower prices. What impact will that have on your support organization? If you're concerned, get the reseller to ensure that you get the exact configuration you need. You'll need to determine these specific requirements and put them in your contract.

Thorough technical tests. This customer did extensive testing and found a comparable flimsiness in a reseller's product, along with some safety and security deficiencies. You must decide if those risks are worth the lower price.

Immature account management organization. Large customers with complex operations demand solid account management and empowered supplier account reps. Some resellers are struggling to provide that up-close-and-personal level of support to major corporations.

Freight. For many, freight is a profit center. Customers should understand shipping terms and conditions, and, if possible, negotiate more favorable freight and payment terms.

Few truly "global" suppliers. Few lessor/suppliers are truly capable of providing excellent and consistent services on a worldwide basis. Many will say they can do it, but not many have the experience yet to truly make the global customer feel comfortable. Conduct a careful evaluation of potential suppliers for global deals. Make sure you involve your international tax and legal support, for example, to validate the supplier's advice on tax and business matters in the various countries. Make your "in-country" staff part of the acquisition team to obtain their specific needs and perspective on the supplier's capabilities in those locations. There's a steep learning curve the first time out, but as you do more global deals, an effort to do it right the first time will pay off.

JOE AUER is president of International Computer Negotiations Inc. (*www.dobetterdeals.com*), a Winter Park, Fla., consultancy that educates users on high-tech procurement. ICN sponsors CAUCUS: The Association of High-Tech Acquisition Professionals. Contact him at joea@dobetterdeals.com.

What's becoming apparent in all this is that to really compete, direct-sales companies must provide the capabilities resellers now offer, including order management and a retail-type customer interface, and custom configuration of the customer systems. Customers looking at dealing directly with direct-to-customer computer makers — particularly users in large, complex organizations — should look under all the rocks and not be seduced too quickly by the equipment price alone. ◗

WORKSTYLES

Silicon Valley Products: Computer Chips, Internet Start-Ups and Single Guys

Guy glut runs counter to national trend

BY BARB COLE-GOMOLSKI

There may be a shortage of information technology workers in Silicon Valley, but there's no shortage of available men.

Recent U.S. Census Bureau data shows that although many other cities are teeming with single women, Santa Clara County has a glut of about 5,000 single guys, which could ultimately make it harder for area firms to hold on to male workers.

Women who relocate to the area are often amazed by the crop of available men, said Jennifer Jones, a recruiter at KPMG Peat Marwick LLP in Mountain View, Calif.

However, the imbalance will "eventually raise a retention problem," said Bruce Tulgan, managing principal at Rainmaker Thinking Inc. in New Haven, Conn., and author of the book *Managing Generation X*. Male workers may be drawn to Silicon Valley for job opportunities and be willing to devote most of their time to work. But eventually, those people will start to get lonely, he said.

Miss-Match

- California's Santa Clara County has 5,400 more single men than women
- In contrast, New York City has a glut of 537,311 single women
- In Los Angeles, single women outnumber unattached men by 127,087

For now, a lot of unattached techies seem content to pour their energy into their jobs.

One recruiting manager at a large computer company said a lot of the firm's male workers are "one-dimensional types" who don't put a lot of value on socializing. Several area employers said they are aware of the imbalance but downplayed its effect on retention.

"My sense is that people coming here just want to be in Silicon Valley," said Ethan Cooke, staffing consultant at Hewlett-Packard Co. in Sunnyvale, Calif. The draw of job opportunities may counterbalance the lack of social opportunities, he said.

Mike Sampogna, director of graduate student relations at IBM Research in San Jose, said new hires are more concerned about finding houses than spouses.

Several area employers in this county of about 1.6 million residents said they're trying to recruit more women into their firms, but most have stopped short of events like planned outings to improve the social prospects of their male workforce.

"I'm dubious about company-sponsored outings," Tulgan said. People are generally too busy to go to those things, he said. To spur social activity, companies are better off giving people some time off, he said.

Jim Azevedo, 31 and single, said that "Silicon Valley is definitely 'slim pickins' when it comes to women.

"You hear about people meeting at work, but in our office, all the women are married," said Azevedo, an account executive at Dovetail Public Relations, a high-tech public relations firm in Los Gatos, Calif. He said the best ways to meet women are by participating in sporting activities. "I go running three or four times a week, and I met someone that way," he said. ◗

Too Many Guys?

At the speed of the Internet, it's easy to get trapped by one-size-fits-all solutions from some of today's e-commerce providers.

But now there's an alternative that lets you keep pace—without growing pains. Intershop, the leader in sell-side electronic commerce software for commerce service providers and developer of powerful, deployable applications for enterprises.

In fact, with a range of solutions, Intershop offers commerce service providers everything from basic storefronts to robust, complete e-commerce solutions that tie together supply chains and back-end business processes.

For enterprise customers, we even offer integration with Enterprise Resource Planning systems like SAP R/3® and Oracle® with add-on cartridges. And devoted to "pure" sell-side e-commerce, you'll find that with every Intershop application, you're not limited to—nor do we try to sell you—particular hardware, software or operating systems. It's just what you need. At the level you need it.

Even better, with quick, smooth deployment that doesn't require months and months of waiting, Intershop means a fast return on investment. So you can do business on the web sooner than your competition—with room to accommodate growing customer needs. Which can put your competition so far behind, they may never catch up. Unless, of course, you like feeling cramped.

To find out more or download a case history, visit our web site, www.intershop.com.

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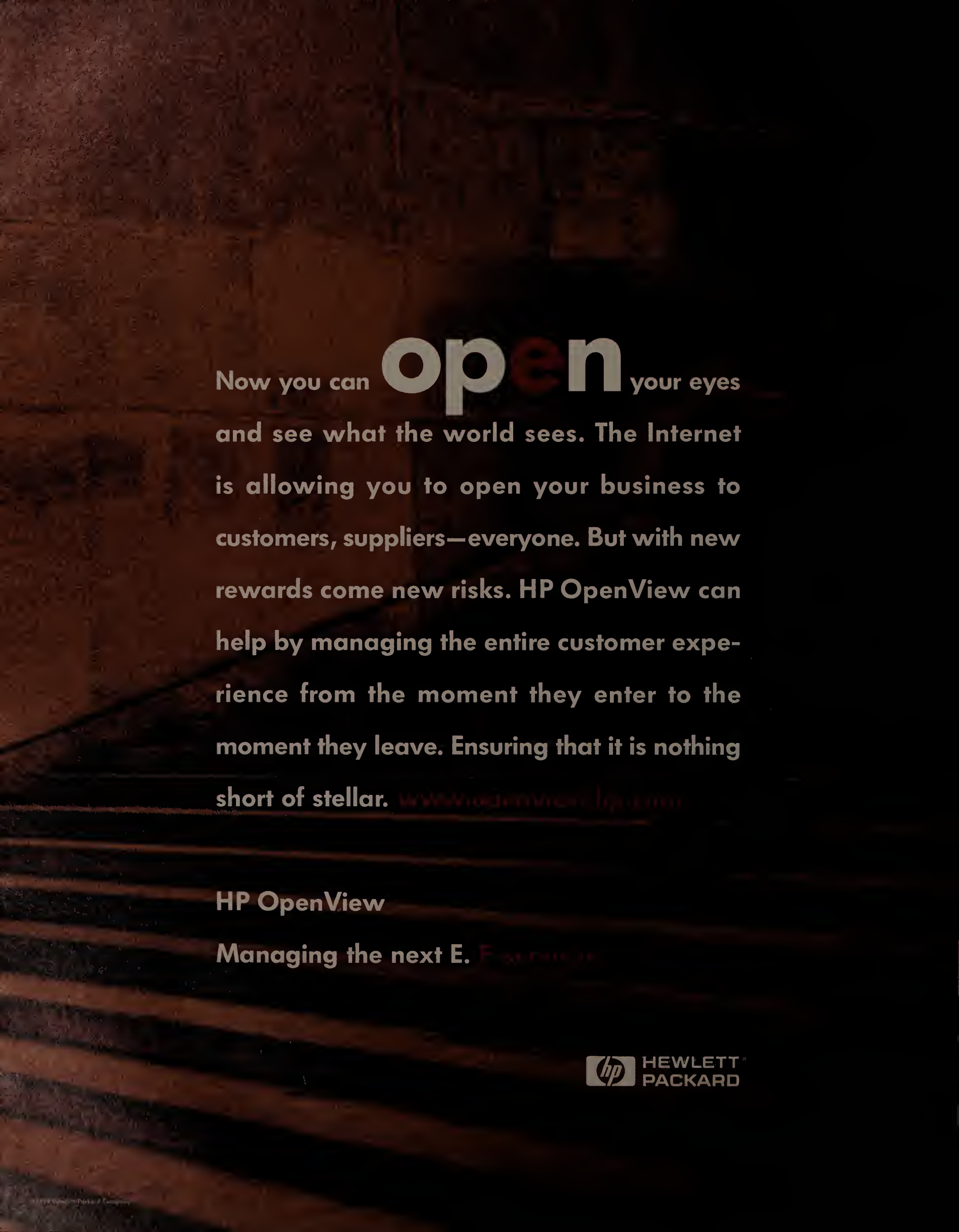
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and see what the world sees. The Internet
is allowing you to open your business to
customers, suppliers—everyone. But with new
rewards come new risks. HP OpenView can
help by managing the entire customer expe-
rience from the moment they enter to the
moment they leave. Ensuring that it is nothing
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TECHNOLOGY

WIN 2K: THANKS FOR NOTHING

Corporate users who only months ago were calling for Windows 2000 migration aids are now finding themselves awash in a sea of tools that could make the complex migration even harder — and more expensive. ▸ 65

CONFIG TOOL SWEATS DETAILS

Desktop DNA, a new Windows utility, lets PC managers configure software and settings when moving or upgrading corporate desktops — right down to an end user's preferred fonts, tool bars and browser bookmarks. ▸ 65

TAMING E-MAIL

Faced with ever more customer e-mail, companies are turning to management software to automate responses and track service levels. Which tool is right for you depends on the complexity of questions customers ask, how your company is organized and even the legal liability of your e-mails' content. ▸ 70

DELL BOOSTS CLUSTERING

Dell has launched a new clustering architecture and related products for customers who want to increase the uptime and performance of their servers. ▸ 68

FASHIONABLY AVAILABLE

As it builds a new IT infrastructure, apparel maker Liz Claiborne is taking no chances with application uptime. A slew of high-availability products from HP, Platinum Technologies and EMC makes for a real belt-and-suspenders approach. ▸ 68

NO COOKIES FOR YOU

A new response-time measuring tool from Candle Corp. lets corporate webmasters use Java applets to track their sites' performance without forcing each customer to leave a trail of cookies. ▸ 72

WINDOWS 2000 TRAINING

Compared with its NT predecessor, Windows 2000 includes significant changes in network administration. Training your IT staff to understand those changes now might prevent headaches down the road. ▸ 79

HACK OF THE MONTH

Experts expect a wave of corporate attacks that exploit global address lists like *employees.all*. The reason: Both network administrators and vendors have grown complacent about their e-mail managing and filtering tools, which are vulnerable to such attacks. ▸ 70

MORE

Hardware..... 68
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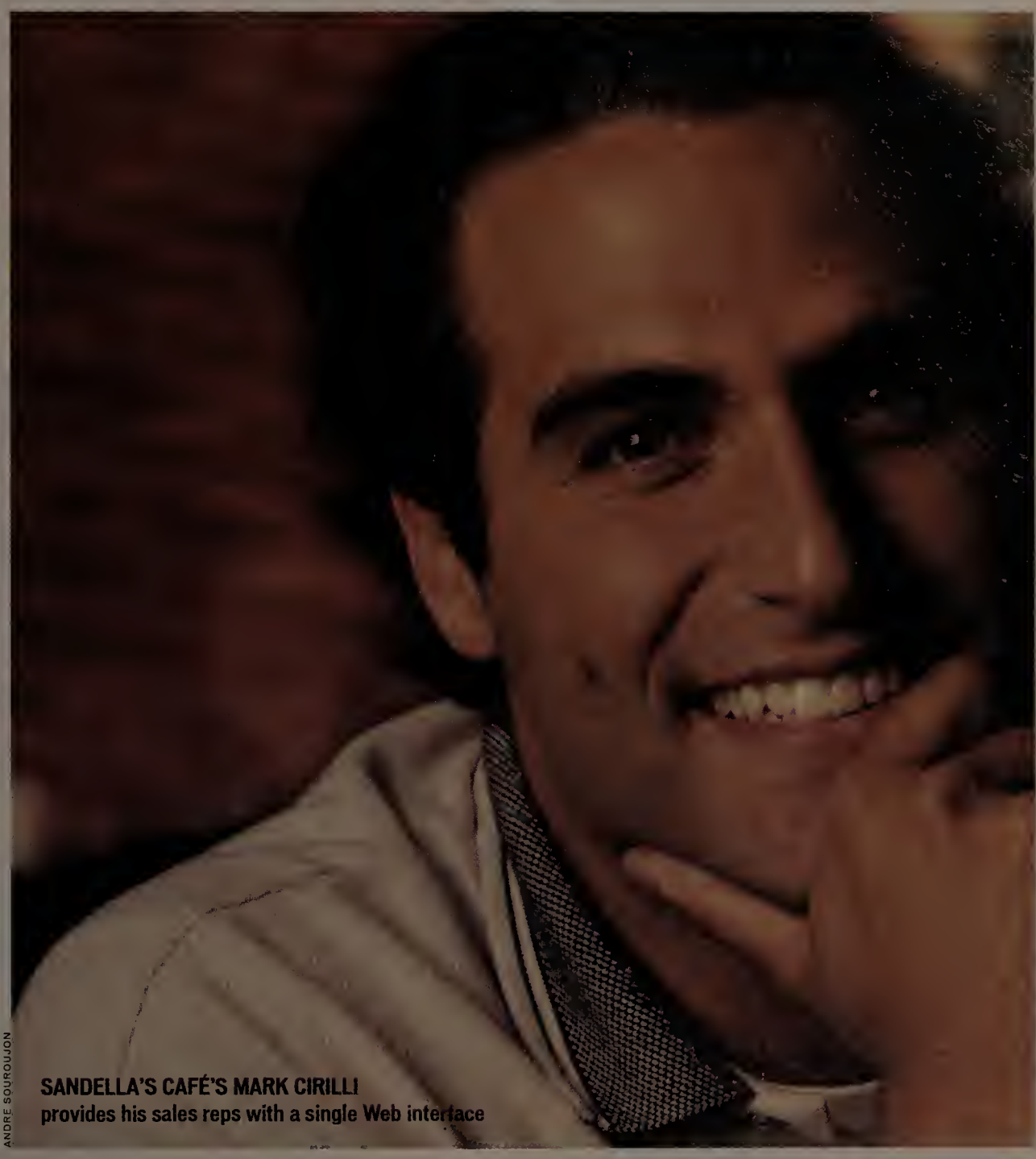

ANDRE SOUROUJON

SANDELLA'S CAFÉ'S MARK CIRILLI provides his sales reps with a single Web interface

ONE IF BY PHONE, TWO IF BY WEB

WHETHER THEY COME IN by phone, fax, e-mail or your Web site, customers need straight answers to their questions — or they'll take their business elsewhere. Here's how some leading players are tying together their own systems and those of their business partners to help Web customers track orders, deliveries and payments.

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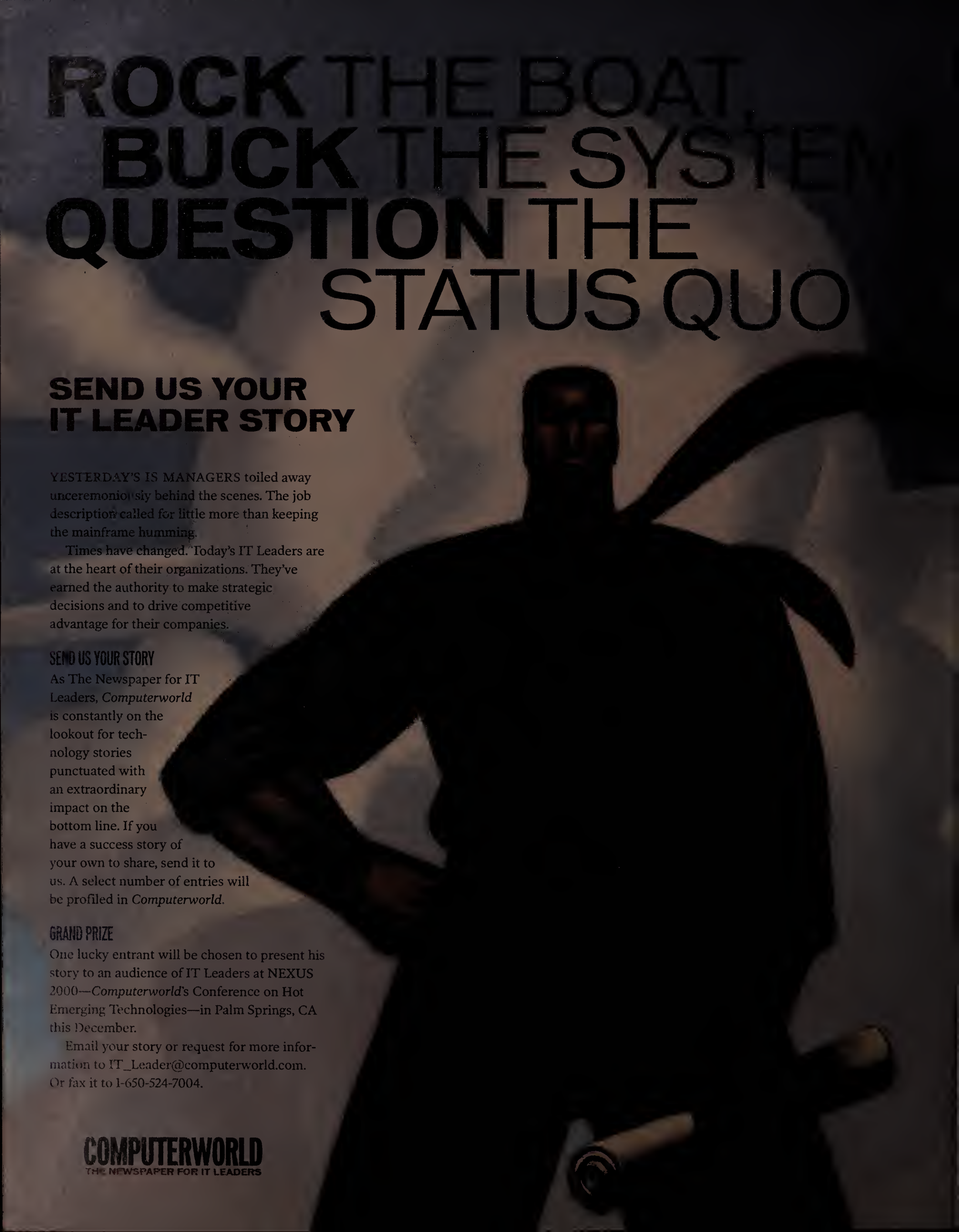
ROCK THE BOAT, BUCK THE SYSTEM, QUESTION THE STATUS QUO



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COMPUTERWORLD
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Win 2000 Migration Tools: Too Much of a Good Thing?

Individual tools work fine; however, their numbers, cost could cause problems

BY SHARON GAUDIN

CORPORATE USERS, who only months ago were calling for Windows 2000 migration tools, are now finding themselves awash in a sea of products that do just that. Although the individual tools do their jobs, the sheer number of tools needed and the combined cost may make the migration even more burdensome.

Companies like Mission Critical Software Inc., FastLane Technologies Inc. and Entevo Corp. are pushing Windows 2000 migration and management tools into the market months before Microsoft Corp.'s new operating system is expected to ship. Now with about a dozen tools hitting the market and at least a dozen more expected users are adding up the cost of the tools and the training to use them.

"If there's going to be an add-on for this or special software for that, there's going to be a very high learning curve for the IT department," said Mark Yates, an administrator at Merck Frosst Canada Co., a Montreal-based pharmaceutical company that uses Tally Systems Inc.'s NetCensus management and migration tool. "You have to figure out if using so many is helping more than creating problems."

The move to Windows 2000 is generally considered to be one of the toughest migrations in computing history. And users say it may take a half-dozen tools to help them deploy the new operating system. That's in addition to the expense of the new operating system itself, the beefed-up hardware to run it and classes to train IT staffs to use it.

"You put all these tools together and what is supposed to help users is going to add a big layer of complexity and expense," said Laura DiDio, an analyst at Giga Information Group Inc. in Boston.

Microsoft has relied on third-party migration tools, licensing Mission Critical's Domain Migrator, which moves and consolidates domains. But a host of other players have tools on the market or in beta testing (see chart).

Arthur Doumas, senior network engineer at BJ Services Co., an oil and gas pumping company in Houston, plans to use FastLane's DM/Management tool to customize a new migration tool set. "I don't expect it to be smooth sailing, but I'm not going to get bogged down with a bunch of different tools," Doumas said.

Windows 2000 Migration Tools

VENDOR/PRODUCT	WHAT IT DOES
Mission Critical Software Inc.'s Domain Migrator	Moves and consolidates domains from NT 4.0 to Windows 2000; licensed by Microsoft to be included as a module to Windows 2000
FastLane Technologies Inc.'s DM/Manager	Moves users from NT 4.0 domains to Active Directory domains
NetPro Computing Inc.'s DirectoryAnalyzer	Troubleshoots the infrastructure; expected to ship next month
Entevo Corp.'s DirectMigrate 2000	Creates new hierarchy and populates it with objects and users
Tally Systems Corp.'s NetCensus V2.95	Surveys the network and reports how many PCs are running, their specifications and what software is running

Windows Utility Retains 'Feel' of Old Desktops

Offers alternative to cloning or copying apps

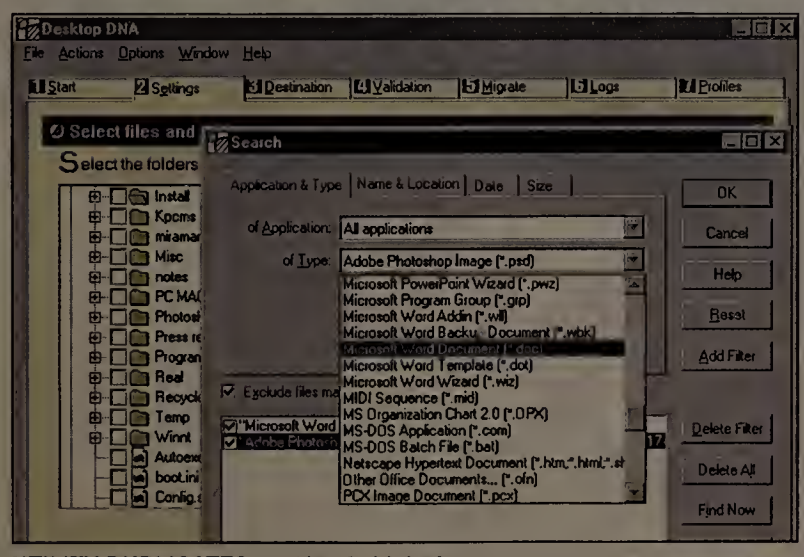
BY SAMI LAIS

Desktop DNA, a new Windows utility, lets PC managers configure software and settings when moving or upgrading corporate desktops — down to an end user's preferred fonts, tool bars and bookmarks.

The new desktop duplicate the look and feel of the old machines and increase users' comfort level, said a spokesman for its creator, Miramar Systems Inc. in Santa Barbara, Calif.

Wizards in the utility help a manager select the system and application settings to create a desktop profile for transfer from one PC to another. The profile can be stored as a back-up for a single machine or used to replicate thousands of new machines.

The utility offers an alternative to cloning, which transfers everything, including junk files and unwanted applications. It also beats copying data and reinstalling applications, which doesn't transfer what may be years' worth of system and application customization.



UTILITY DUPLICATES profile of old desktops to ease move to new ones

Desktop DNA was developed in response to pleas from Nortel Networks, which two years ago needed to move applications, data and settings from 50,000 old, leased PCs to new machines.

Personalization

At Nortel, PC applications are freshly installed on each machine, but the company wanted an easier and faster way to handle migration of "anything that's personalized and site-specific," said Sylvia Pesold, senior manager of desktop project implementation.

As a former systems administrator, "I can see how it could make life easier," said Nimisha Patel, senior analyst at Aberdeen Group Inc. in Boston. "It's a simple product, and I think the benefits are clear."

Pricing begins at $249 for five seats. The utility will be available next month.

BRIEFS

PeopleSoft Adds Performance App

PeopleSoft Inc. in Pleasanton, Calif., last week announced it's developing a "balanced scorecard" application that lets users measure corporate performance in multiple categories.

This week, the company will announce packages for analyzing human resources data. The packages are set to ship in the fourth quarter.
www.peoplesoft.com

SmartDB Upgrades App Integration Tool

SmartDB Corp. in Palo Alto, Calif., this week plans to release an upgrade of its application integration software with a revamped user interface and a new memory-resident database intended to boost data-transformation speeds.

The software, renamed Interfacing Studio 5.0, typically costs $50,000 to $250,000.
www.smartdb.com

Pervasive Ships Database Engine

Pervasive Software Inc. in Austin, Texas, is shipping the Pervasive SQL 2000 database engine for server, workgroup and workstation environments.

The new engine is available on the Microsoft Corp. Windows NT, IBM Netfinity and Novell Inc. NetWare platforms.

Pricing starts at $995 for a 10-user server engine.
www.pervasive.com

QwikQuote Revamp Eases Installation

Pennington, N.J.-based Electronic Business Universe has announced QwikQuote 5, sales quoting software.

The company said the revised version features easier installation and "intelligent printing" capabilities and is compatible with Adobe Systems Inc.'s Acrobat. QwikQuote 5 also is compatible with Microsoft's Access 8.0.

The single-user price is $199.

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BRIEFS

Management Server In a Box from Dell

Round Rock, Texas-based Dell Computer Corp. has announced OpenManage PowerSuite for Microsoft Corp. Systems Management Server. The system includes a Dell PowerEdge 4300 server loaded with Microsoft SMS 2.0, SQL Server 7.0 and Windows NT 4.0. It also includes one week of on-site consulting and support.

Pricing for the package starts at $18,000.

www.dell.com

CDMA Handset Sales Soar

Code Division Multiple Access (CDMA) digital cellular handsets outsold other varieties in the U.S. in the first quarter, according to Dataquest in San Jose. There were 3.2 million CDMA handsets sold, compared with 2.8 million Time Division Multiple Access (TDMA) units. Dataquest said that last year, TDMA outsold CDMA 8.2 million units to 6.8 million.

Penguin Ships Linux Server

Penguin Computing Inc. is shipping a server featuring four 550-MHz Xeon processors from Intel Corp. The server runs Linux and was designed for both file and Web serving, according to the San Francisco company.

Pricing starts at less than $14,000.

www.penguincomputing.com

Compaq Unveils 366-MHz Notebook

Compaq Computer Corp. has introduced Armada 1500c, a notebook computer based on the 366-MHz Mobile Celeron processor from Intel Corp. Compaq said the notebook includes a 128K-byte internal cache, 32M bytes of memory and a 4G-byte hard drive. It features a 12.1-in. color display, a 24-speed CD-ROM and an integrated 56K bit/sec. modem.

The notebook costs $1,599.

www.compaq.com

Systems Makeover on Track at Liz Claiborne

Apparel maker is replacing AS/400 environment with clustered Unix servers

BY JAIKUMAR VIJAYAN

APPAREL maker Liz Claiborne Inc. is taking no chances with application uptime as it fashions itself a brand-new information technology infrastructure.

The North Bergen, N.J.-based company is nearing the end of a three-year rebuilding effort started in 1997. Last year, we reported that the project was aimed at cutting operating costs, improving communications with business partners and making systems Y2K-compliant [Servers & PCs, April 13, 1998].

(www.computerworld.com) April 13, 1998 Computerworld 55

Servers & PCs

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IT overhaul may boost fashion profit

• Liz Claiborne swaps old systems for new in bid to get more flexible

By Jaikumar Vijayan

MIDWAY THROUGH the most wrenching information technology overhaul in Liz Claiborne, John Sullivan, the president of in-

startling insight.

"The biggest challenge in attempting something like this has got almost nothing to do with technology issues," Sullivan said. Instead, he discovered it is about lining up technology changes with business needs while teaching people how to cope with change.

For the past 18 months, Sullivan has been leading an information technology overhaul that is being driven by a sweeping reorganization at the New York-based apparel maker.

The objectives of the reorganization: double revenue to more than $4 billion by the year 2000, cut down operations costs, improve communications with suppliers and customers and make systems compliant with year 2000 date changes. When the reorganization is complete in mid-1999, Liz Claiborne will have replaced more than 80% of its old computer infrastructure.

Almost all of the old

We also reported that the project was to be completed about now. So we checked in to see how things have gone. The answer is: pretty darn well.

"We were migrating from a well-known environment to one where many of the technologies are new," reflected John Goodhart, Liz Claiborne's IT director. "Even our vendors had a learning curve."

Nevertheless, the most critical applications and databases have been moved from the old IBM AS/400 environment to one with the latest generation of Unix hardware, running new versions of the operating system and the most recent releases of database and high-availability technologies.

When all the work is done, which Goodhart expects by summer's end, the company will have replaced more than 75% of its applications and databases with a highly integrated system that can be accessed around-the-clock by offices in 25 countries.

The system starts with 22 high-end Hewlett-Packard Co. Unix servers. The servers run Oracle Corp. databases and are padded with a slew of high-availability products from HP, Platinum Technology Inc., Legato Systems Inc. and EMC Corp.

"Our company puts a very big emphasis on high availability," Goodhart said. "We have implemented it here through a combination of technology, services and platform choices."

FOLLOWUP

"If you want high availability, you've got to build it in from the get-go," said Jonathan Eunice, an analyst at Illuminata Inc., a consultancy in Nashua, N.H. "With RAID storage, multisystem clustering, careful change control and continuous monitoring, you can dramatically control your downtime" in a client/server environment, he added.

The HP 9000 K-class servers that host six of Liz Claiborne's most crucial new applications are linked in a high-availability cluster using a technology called HP MC Service Guard. A "heartbeat" function monitors the cluster and automatically moves applications to a standby box in case of hardware problems.

Many of the high-availability features Liz Claiborne sought on the storage side were already built in to EMC's Symmetrix configuration, Goodhart said. Those include fully mirrored disks, separate power supplies and an automatic call-and-dispatch capability.

Complementing those technologies are service contracts with vendors and long-standing high-availability management practices. A "critical support service" contract with HP, for instance, guarantees problem resolution within six hours of notification. ◗

Dell Unveils Clustering Suite

BY JUAN CARLOS PEREZ

Dell Computer Corp. has launched a new clustering architecture and related products including cluster-management software and a network interface card from a third party.

The Scalable Enterprise Computing architecture, announced last week, is intended for companies that want to cluster Dell servers to increase server uptime and performance by balancing server workloads and establishing server redundancy.

Dell is packaging the products needed to create the architecture into the Dell PowerEdge Cluster FL100 Reference Configuration, said Kevin Noreen, product marketing manager for Dell clustering, based in Round Rock, Texas. Pricing depends on the specific options selected.

The products include a variety of Dell PowerEdge servers with RAID and host-based adapters, Dell's PowerVault 650FF Fibre-Channel RAID storage system, the PowerEdge Cluster FL100 Kit and Windows NT 4.0 Enterprise Edition with server failover software. The reference configuration also includes two new products: the Dell OpenManage Cluster Assistant with ClusterX systems management software and Giganet Inc.'s network interface card cLAN GNN1000 Host Adapter.

The cluster management software was designed for Windows NT and lets users configure and manage clustered servers and manage multiple clusters from a single PC, Noreen said. ◗

Perez writes for the IDG News Service in Latin America.

SNAPSHOT

Handheld Computer Market Share Forecast

	1999	2000	2001	2002	2003
PalmPilot	54%	57%	58%	60%	60%
Windows CE	8%	10%	12%	14%	18%
Others	38%	33%	30%	26%	22%

SOURCE COMPUTER ECONOMICS INC CARLSBAD CALIF

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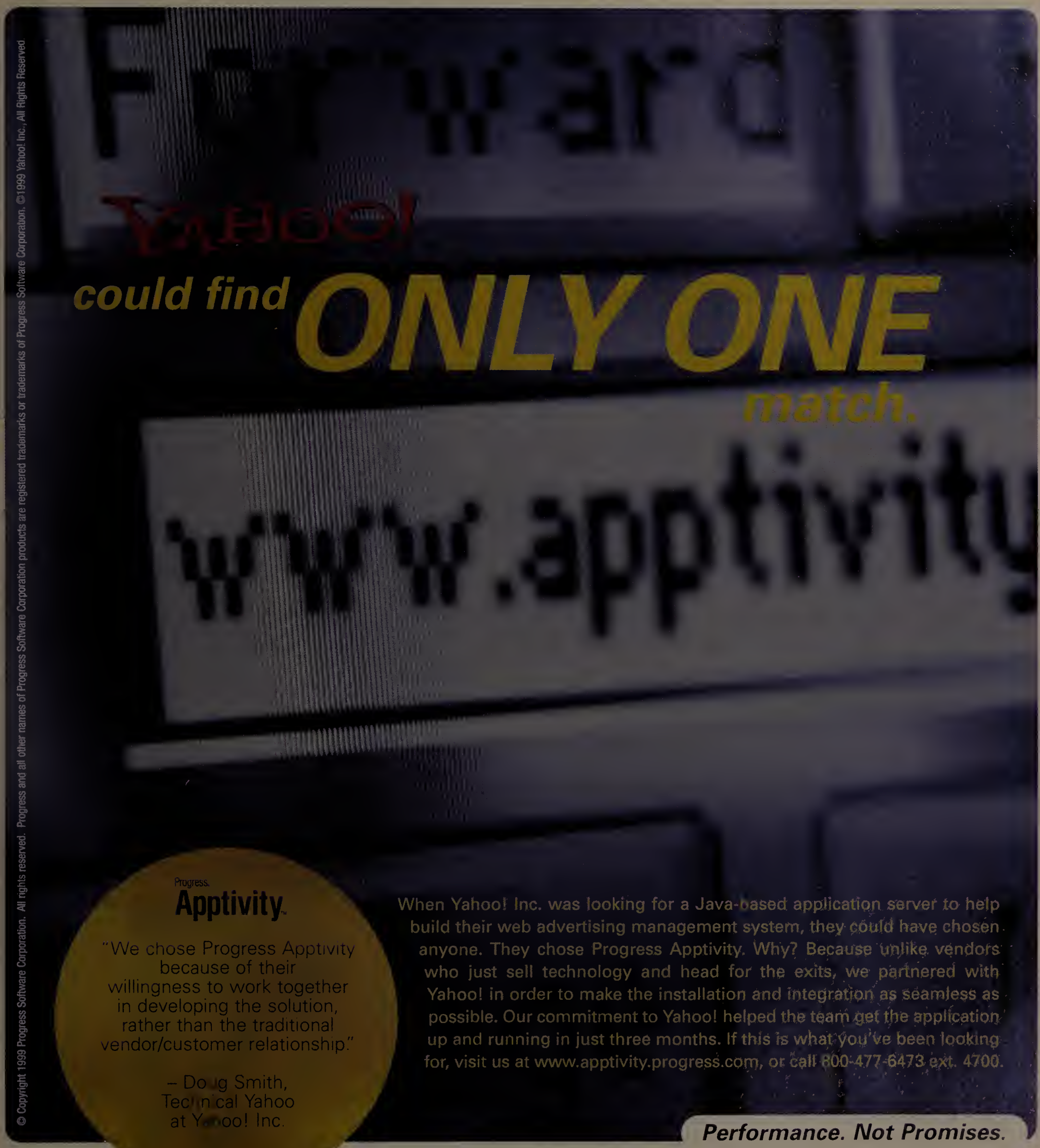

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– Doug Smith,
Technical Yahoo
at Yahoo! Inc.

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E-Mail Tools: One Size Doesn't Fit All Needs

Choice depends on number and type of queries

BY DOMINIQUE DECKMYN

FACED with ever more customer e-mail, corporations are turning to management software to automate responses or simply to track service levels.

A recent report from Patricia Seybold Group in Boston examined six of the most popular e-mail customer support systems and concluded each is suited to different needs. Which one's right for you depends on the complexity of questions customers ask, how your company is organized and even your legal liability for what you say in e-mail.

In early 1997, TD Bank Financial Group in Toronto was receiving more than 2,000 e-mails per month from customers, and that number kept rising. "Every month, our bill [for customer service representatives] was getting higher," but service levels weren't improving, said Steve Gesner, vice president of interactive services. TD Bank went with Brightware Inc.'s Brightware, which boasts "artificial intelligence" to automate responses.

TD Bank's four customer service representatives now respond to five to six times more e-mail — up to 12,000 messages per month. About 40% to 45% of e-mails are answered automatically — 95% are answered within 24 hours and "the vast majority" go out within the hour, Gesner said.

Uniforms To You, a Chicago-based subsidiary of Cintas Corp., chose Mustang Software Inc.'s Internet Message Center, which it's using to route and track e-mails from customers and mobile salespeople to its 75 representatives.

Automated responses are not crucial to the firm, says Dave Zmeyr, manager of network services, because most queries involve a high degree of human intervention.

Uniforms To You selected Mustang because the vendor was more willing than others to customize its software and help Uniforms To You do further customization.

I-Escrow Inc. in San Mateo, Calif., provides escrow services to users of online auctions such as eBay Inc. By late last year, the company was receiving 100 e-mails per day and found it impossible to coordinate more than three service representatives, said Dan Smith, vice president of engineering.

The company needed a Web-based e-mail response system that was easy to set up and could integrate well with its proprietary Web-based transaction system. Automated responses weren't a primary requirement. E-Mail Messaging Server from eGain Communications Corp. fit the bill, Smith said. I-Escrow now has about 30 representatives answering 600 to 700 e-mails per day. The eGain software makes it easy to add representatives and track their performance, Smith said. ◗

You Make the Call

Pick an e-mail response tool that fits the way you do business. Here are some hints:

TYPE OF SYSTEM	TOOLS THAT WOULD WORK WELL
Expecting many questions on a few topics	Brightware is good at automated responses
Expecting many different and complex questions	Kana CMS or eGain EMS route incoming mail to the proper customer service representative (CSR). Aditi's Talisma promotes collaboration between CSRs.
Highly compartmentalized organization, with many CSRs supporting different products	G2X's eMailroom 2.0, which can adapt easily to different approaches
Geographically dispersed or very Web-minded	Make sure tool has a browser interface

SOURCE: PATRICIA SEYBOLD GROUP, BOSTON

DEBORAH RADCLIFF/HACK OF THE MONTH

Complacency Leads To E-Mail Hacks

RECENTLY, about 40 desktop e-mail applications started acting up at an East Coast telecommunications company. Then the company's mail server ground to a halt. The company called Mike Young, a network security consultant at Thorne Securities, the information security arm of DataStaff Inc., a Schaumburg, Ill., job placement firm.

Young discovered that the company's e-mail backbone was under attack by a new variant of the Melissa virus, which exploited its .all mail extension to spread to desktops, then loop back to the main mail server. It "brought peoples' Microsoft Outlook down, then crashed the mail server," Young said.

Rob Rosenberger, creator of the Virus Myths Home Page *(www.kumite.com/myths)*, wasn't surprised. He said he's expecting a wave of corporate e-mail infrastructure attacks. Why? They're easy to pull, experts said. If your mail server accepts e-mail from outside the firewall to a global address list such as employees.all, you've got a problem.

The reason: For a long time, crackers have eschewed e-mail exploits in favor of sexier attacks like gaining root access. So network administrators have grown complacent about their mail systems (Problem One). And so have vendors (Problem Two).

What You Can Do

"Overwhelming e-mail systems by mailing malicious code that reaches into address books and then hits .all lists is as much a problem in the way corporate administrators set up mail as [are] faults in the [mail] software," said George Smith, creator of the online "Crypt Newsletter" *(www.soci.niu.edu/~crypt)*.

The easiest way to protect yourself is to block access to .all lists from outsiders, said Brian Koref, a security project leader at Conexion Corp., a Santa Clara, Calif., business Internet hosting service.

Even inside the company, Smith recommended restricting .all list access to those who truly need it, such as managers or assistants who must mail everyone in their department. If possible, he said, you should get rid of global addressing altogether.

DEBORAH RADCLIFF is a freelance writer in Northern California. Her Internet address is derad@aol.com.

What Vendors Do

Rosenberger said most mail servers, virus tools and filtering software get befuddled by mail with unanticipated attachments such as zero-byte executable file attachments that can't be opened or e-mail headers longer than the recognizable 360 bytes. Mail services don't know what to do with such bizarre mail and may freeze up or get stuck in a loop trying to open them.

"I've built samples of e-mails and attachments that would take out the mail capability at most Fortune 500 and large government agencies . . . for two weeks," Rosenberger said.

Some vendors are on to the problem. One is Content Technologies Inc. in Kirkland, Wash., which makes e-mail gateway security products. The company's MailSweeper tool cordons off e-mail with unrecognizable attachments.

I hope other vendors are listening. ◗

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COMPUTERWORLD

THE NEWSPAPER FOR IT LEADERS

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Cookie-Free Tool Gathers Web Site Data

BY SAMI LAIS

Corporate webmasters can now track their Web site's performance without forcing each customer to leave a trail of cookies to follow.

Candle Corp.'s ebaServiceMonitor response-time measuring tool gathers data on users' experiences at a Web site via a Java applet that travels with the Web page and reports data back to the server in real time. When the visitor leaves the site, the 100-byte applet dies without ever writing its data to the user's PC in the form of a cookie.

The cookie-free approach speaks to concerns about "privacy and security expressed by all our customers," said Ed Kamins, senior vice president of corporate business development at Avnet Inc., a value-added reseller and integrator in Great Neck, N.Y.

Before going to ebaServiceMonitor in February, KeyCorp relied on "what we called the Mrs. Lawton response-time indicator," said Brian J. Lawton, the company's vice president for Web support services. "I'd call my wife and get her to go online and perform a transaction, and we'd time it."

Thinking Differently

The data from ebaServiceMonitor "makes you think differently about how you're doing things," said John N. Stewart, director of systems engineering and security at Digital Island, a Web application hosting service in San Francisco. "Suddenly, you have all these users telling you how you're performing. You start thinking, What else could you do with this data?

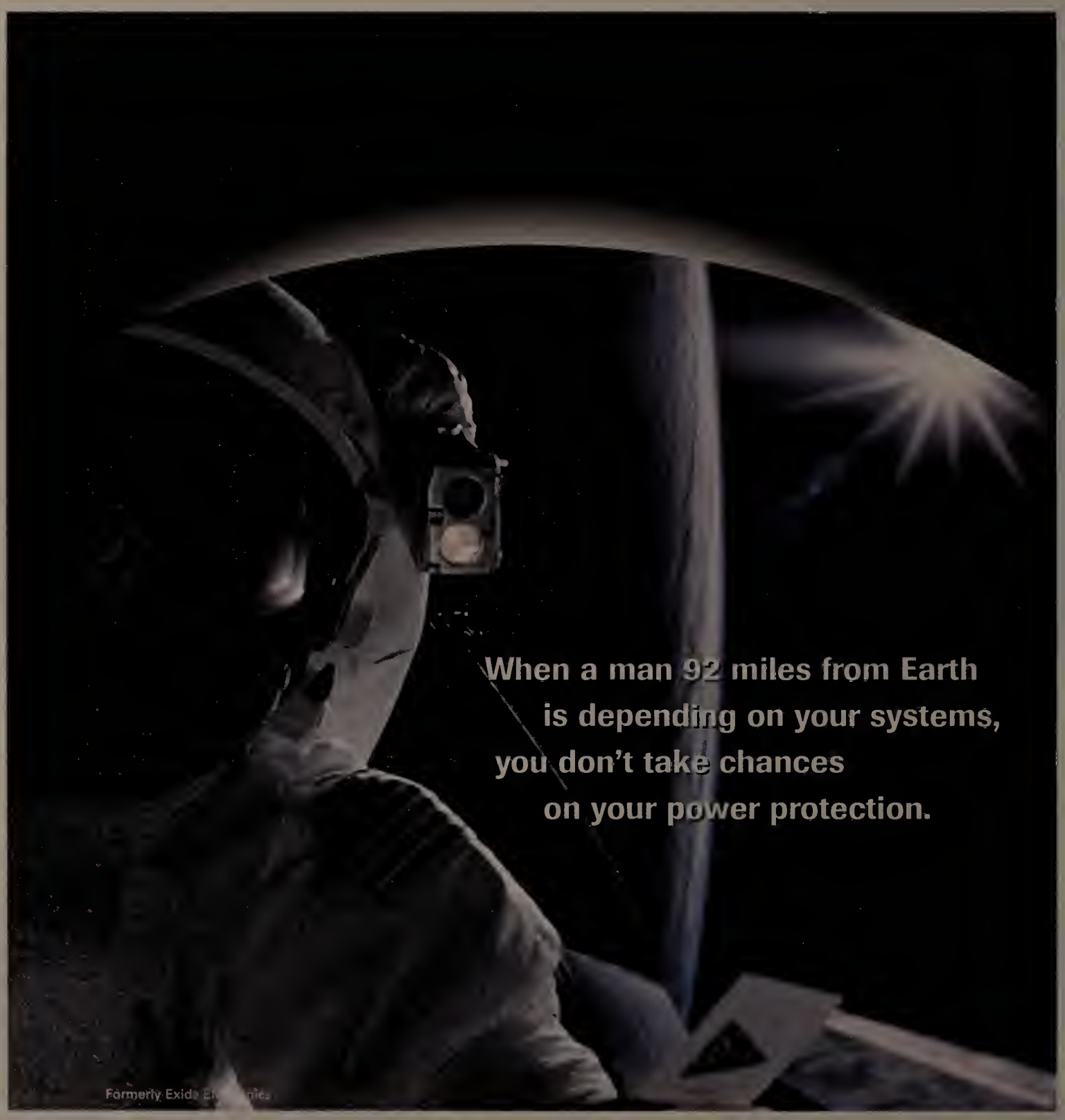
"You can look at your [service provider] for congestion points, you can pinpoint where you have the highest percent of customers having the greatest delays," Stewart said.

The data could also be useful in setting service-level agreements (SLA), said Donna Scott, an analyst at Gartner Group Inc. in Stamford, Conn. "Less than 5% of companies are setting SLAs for their distributed applications because there hasn't been a way for them to do it," she said.

Such agreements could now be put in place, and enforced, between a customer and an Internet service provider or between a company's own Web services department and sales or accounting departments.

If a customer uses Candle's optional ebaServiceNetwork, Candle, not the site owner, will store the performance data using Candle's Roma data warehousing product and make reports available via a password-protected intranet.

Priced at $1,995, an ebaServiceMonitor starter package measures up to 10 sites on a Web server. A free 30-day trial is available at the Candle site at *www.candle.com*. Enterprise configurations are typically priced from $100,000. Pricing for ebaServiceNetwork varies with service configurations.



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Portals Made Simple

The portal market may be filled to the rim, but that hasn't stopped BroadQuest from delivering its own unique offering

BY STEVE ULFELDER

BROADQUEST INC. sure chose a rough time to dub itself a "customer information portal." Who *isn't* a portal these days?

The San Jose start-up, which puts a browser-based interface on all of a company's customer-related front- and back-office applications, boasts focused, solid technology that may help businesses squeeze more juice out of their data.

For information technology departments, BroadQuest's relative simplicity may help it stand out. Unlike portal middleware products that pull data from various sources to create an uber-database — and potentially create data shuttling and rules enforcement problems — the company's application presents a *view* of data, not the data itself. That gives end users most of the functionality they need and spares IT some headaches.

But BroadQuest faces an uphill battle in differentiating itself from the other zillion "enterprise portals." And there's the chance that bigger customer relationship management (CRM) players will admire BroadQuest enough to reverse-engineer its technology.

After sinking big money into enterprise resource planning (ERP) suites as well as customer interaction tools for the sales, marketing and support departments, businesses often find that all the customer data they gather is scattered, incompatible and hard to leverage quickly. For example, even the slickest power user in the sales department will have trouble digging data that may be vital to a sale out of an unfamiliar back-office application. Results: lost business and high support costs.

To get more oomph out of that precious information, many companies have turned to expensive custom integration or kludged up their general-purpose reporting tools.

BroadQuest's approach: Let users view all data through a single interface. Keep the data fresh (minutes old) and the interface easy.

The key to BroadQuest 2.0 is its broker-based architecture. Data servers, or brokers, sit between a company's data sources and its end users. When a user makes a query, a Common Object Request Broker Architecture broker sends the query to the appropriate data source — be it a database, an ERP module or a CRM application.

BroadQuest claims that the application has a minimal impact on network performance. The reason: Tables queried become memory-resident in a dedicated server, so most requests from users (about 90%, said company president Bill Walsh) are already in memory. Some competitors address the problem using message-brokering middleware to translate actual data among systems.

Analysts praise BroadQuest's thin-client approach. "They've clearly chosen the right architecture," said Hugh Bishop, an analyst at Boston-based Aberdeen Group Inc.

The simple interface is also a big sell. "If you know how to use a browser and a search engine, you know how to use this," said Jerry Colfer, CIO at Johnson & Johnson's Neutrogena division. "It's Yahoo for your internal data."

Because BroadQuest is read-only, you needn't worry that a power user will go mucking around in your databases. But BroadQuest doesn't offer all the capabilities of high-level analytical tools, Bishop said, adding that the product is best "for commonly viewed data [on which] you're not doing complex analysis."

Los Angeles-based Neutrogena is rolling out BroadQuest 2.0; the company will offer single-interface access to data residing in an IBM DB2 database and on Digital VAXs, as well as other data sources.

Colfer said that when seeking to replace legacy reporting applications, his department "saw the potential to empower end users with more proactive analytic tools — to get into much more real-time reaction to business data."

BroadQuest 2.0 is priced at $99,000, and the company said it can have the application up and running in about a month.

So do you want to bet a hundred grand on BroadQuest?

The company's greatest threat may be all the jostling and uncertainty in the enterprise portal market. It's hard to stand out. "We do get lumped in with the tool makers and the report generators," Walsh acknowledged.

Another danger may be that if BroadQuest does indeed differentiate itself, bigger competitors will come running. "Other CRM players could step in, and I'm sure there are lots of business plans in front of [venture capitalists] right now," Bishop said.

"There's always a danger when companies are bigger than you," Walsh shrugged, "but the bigger they are, the less nimble they are." ◗

GREG STIDHAM

BROADQUEST PRESIDENT BILL WALSH: "There's always a danger when companies are bigger than you"

BroadQuest Inc.

Location: 2 North First St.
San Jose, Calif. 95113

Telephone: (408) 287-5665

Web: www.broadquest.com

Niche: Customer information portal. Presents a single browser-based interface for all customer information – including ERP packages and front-end CRM tools.

Why it's worth watching:
Elegant, why-didn't-I-think-of-that technology: BroadQuest 2.0's broker-based system reads data sources rather than creating a new mother lode of data.

Company officers:
- Larry Krume, CEO
- Bill Walsh, president
- William J. Peichel, CFO
- Odysseas G. Tsatalos, CTO
- Thomas J. Reilly, vice president of sales and marketing

Milestones:
- Founded in June 1996.
- Shipped first product in 1998.

Employees: 36

Burn money: $18 million-plus in venture funding. Company says investors include venture capital firms Sevin Rosen Funds, Crosspoint Venture Partners, Hunt Financial, Invesco and BancBoston Robertson Stephens.

Product: BroadQuest 2.0, a browser-based application that gives users self-service access to near real-time customer information.

Red flags for IT:
- **That quiet air of refinement.** In a crowded field, BroadQuest may have trouble explaining its subtle differentiators.
- **Bigfoot factor.** Larger ERP and CRM vendors could overshadow BroadQuest by improving interfaces and interoperability.

COMPUTERWORLD emerging companies

[the buzz
STATE OF THE MARKET]

Everybody's A Portal These Days

If you blow a tire driving down Silicon Valley's Highway 101, chances are pretty good that the driver of the first car you hit will be into corporate portals. The field is that big, that turbulent . . . and that vague. It's not easy to sort out the players. For an overview, see our recent QuickStudy ["Corporate Portals," Technology, June 28]. You can also link to that story at *www.computerworld.com*.

Once you sift out the tool builders, the middleware vendors and the ERP and CRM heavyweights, you find BroadQuest's true competitors:

■ Concur Technologies Inc.
Redmond, Wash.
www.concur.com
This "employee business portal" stays inside the firewall and focuses on front-office applications such as expense reports, travel-booking and ordering.

■ Glyphica
Mountain View, Calif.
www.glyphica.com
Offers Web-based CRM products with a portal interface. Specialty: Converting existing data into Web pages for intranet/extranet use.

■ Inforay Inc.
Cambridge, Mass.
www.inforay.com
Creates a grid (or "X ray") of all of a company's business data. Specializes in ferreting out overlooked opportunities after two companies merge. Implementation takes two to three times as long as BroadQuest's.

■ Information Advantage
Eden Prairie, Minn.
www.informationadvantage.com
Its product, called MyEureka, offers robust reporting tools – and thus additional complexity.

■ Viador
San Mateo, Calif.
www.viador.com
Its approach is similar to BroadQuest's – a single browser-based interface to corporate data – but Viador focuses on e-commerce. Starting at about $30,000, its E-Portal Suite is a lot cheaper than BroadQuest 2.0

HOT TRENDS & TECHNOLOGIES IN BRIEF

Common Gateway Interface

BY FRANK HAYES

AFTER all these years, is there any future on the Web for CGI — the venerable Common Gateway Interface?

When first developed a decade ago, the World Wide Web was designed for displaying documents.

But almost from the start, Web site developers wanted a way to send data from a user's browser to a Web server — for example, a user's name and password, or input for a search.

CGI offers a standardized way of providing that capability. When a user types data into a Web page form, the contents of the form are sent back to the Web server and fed through the CGI interface to a separate program for processing.

The CGI program can then send back to the user's Web browser an existing Web page, a new page generated on the fly, an image or any other kind of information that can be displayed on a browser.

Because CGI is so flexible, almost any program that can run on a Web server and accept command-line data can be used with CGI. Those include programs written in C, C++, Perl, Visual Basic and even Unix shell languages.

One major drawback with CGI is that it launches a new program each time a user clicks on a form, so Web servers used for heavily trafficked sites could be running thousands of programs at once — a huge drain on Web-site performance.

Specialized Programs

Users also complain about programs written for CGI that aren't reusable as Web sites change, because those programs are frequently very specialized.

As a result, over the past several years, many large Web sites have phased out CGI in favor of application servers [Technology, April 12]. Like CGI programs, application servers accept user input and send back Web pages or other information. But an application server processes many users' input with a single program, dramatically improving performance.

DEFINITION

The Common Gateway Interface (CGI) is a standard for connecting an application program to a Web server. Data from a form filled out by a user on a Web page is passed to a CGI application, which can then send dynamically generated Web content back to the user's browser.

Nice Fit

That doesn't mean an application server is for everyone. CGI is a nice fit for use on intranets, which usually have less traffic than external sites. That's a plus because departmental budgets generally don't support the $15,000 to $100,000 price tag of an application server — compared with CGI, which is built in to all Web servers.

CGI programs can be written in almost any language, and the CGI interface is very simple, so Web developers can quickly slap together simple CGI utilities.

That makes CGI a practical tool for emergency fixes and utilities that won't be heavily used on commercial Web sites.

"CGI is still very important," says Steve Robins, an analyst at The Yankee Group in Boston. "But there are increasingly more elegant ways, more sophisticated ways, to integrate with other systems."

Other Options

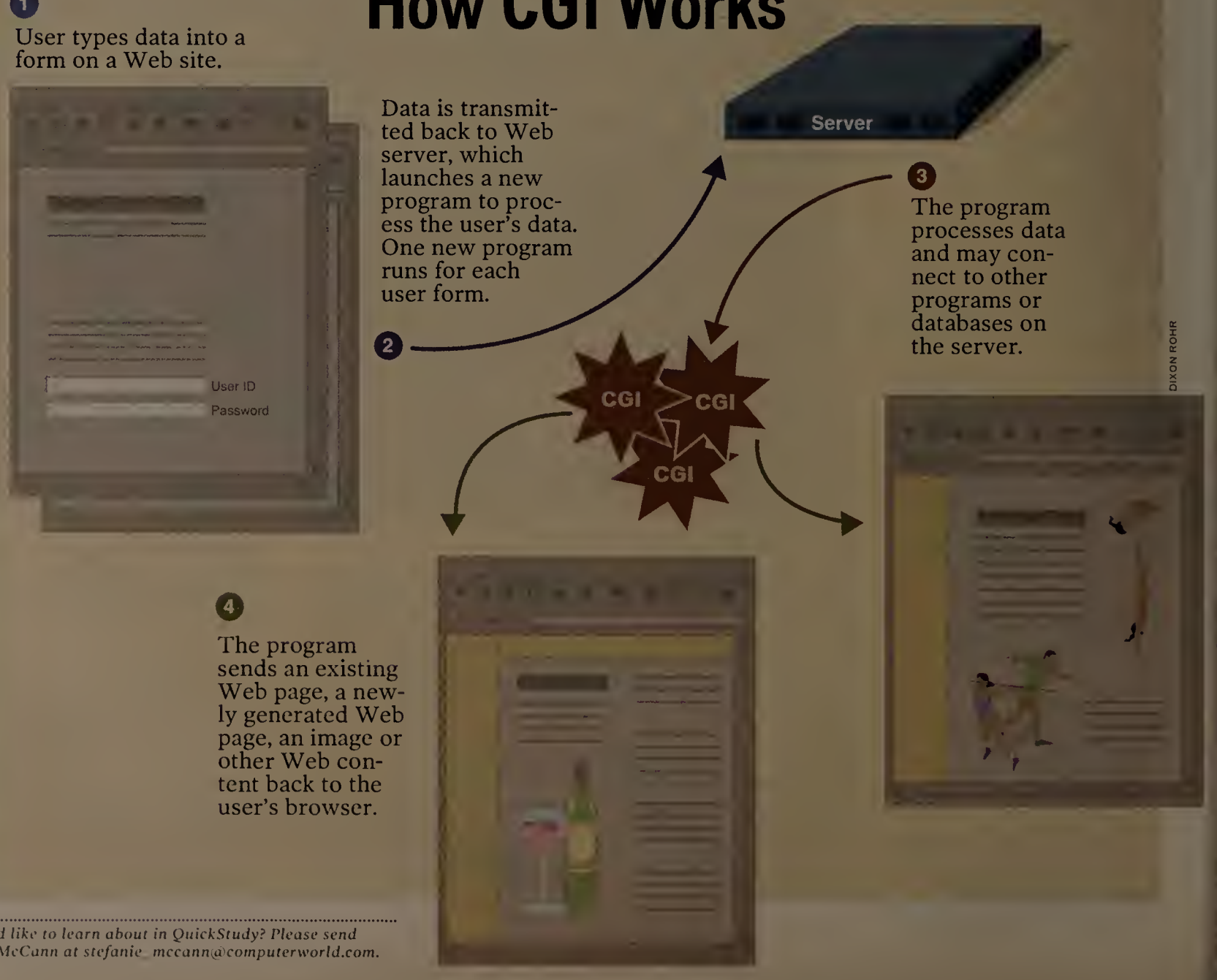
Along with application servers, these other ways include Active Server Pages — a generic application server built in to Microsoft Corp.'s Internet Information Server Web server — and Java servlets, which are small Java programs that run on a server.

"CGI is like a hammer," says Ray Valdes, an analyst at Gartner Group Inc. in San Jose, "Large sites may have switched to power tools, but they still need a hammer for quick-and-dirty jobs."

MOREONLINE

For more information on Common Gateway Interface, visit our Web site.
www.computerworld.com/more

How CGI Works



Are there technologies or issues you would like to learn about in QuickStudy? Please send your ideas to QuickStudy editor Stefanie McCann at stefanie_mccann@computerworld.com.

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Empowering the Internet Generation™

E-Books: Still An Unfinished Work

BY DAVID STROM

ELECTRONIC BOOKS are catching everyone's attention: They offer the option of not having to carry a bunch of bulky books on a plane, and they allow a new way to distribute corporate information such as price lists and product data. But are these conversation pieces any good? Well, not quite yet.

Electronic books aren't new. The concept of a portable device that lets you read book-length works is as old as the PC, and over the years, many have tried but failed to make a go of this technology. The attraction is simple: You can store many books on a single unit and easily update the content so your sales force has current price and inventory at hand.

During the past year, a new crop of products has come to market with longer battery life, better screen technology and use of the Internet as a distributor of electronic-book content.

Analysts predict that the next year might be a boon for electronic books. "Shipments in 1999 will likely be in the tens of thousands of units. More dramatic sales growth could begin in the year 2000," says Victor Votsch senior editor at Seybold Publications Inc.'s "The Seybold Report on Internet Publishing." Two models are shipping now — Rocket eBook from NuvoMedia Inc. and Softbook from Softbook Press Inc. Two more are expected by the fall: the Millennium E-Reader from Librius.com Inc. and Everybook Inc.'s EB Dedicated Reader — and more companies have products in the wings.

I tested the four units (including prototypes of the latter two) but found them all lacking. None was as comfortable to read as a printed page. All had limited content available: Rocket has more than 700 titles available through either the Barnesandnoble.com or Powells.com online bookstores. Softbook's Web site has more than 400 titles, plus several business-oriented periodicals such as *TimesFax* from the The New York Times Co. and Hoover's Inc. *Company Profiles*. Everybook and Librius will probably use their own Web sites initially. Downloading content to Softbook and Everybook is a snap. You download right to the product. On the others, you download to the PC and then move it to the book.

But there are a few hurdles: Each device uses its own electronic format to download content. They can get expensive. And the smaller units are harder to read, while the bigger ones like Everybook are bulky. ◗

Strom is a freelance reviewer in Port Washington, N.Y.

Softbook Reader

Softbook Press Inc.
www.softbook.com
$699.95 without subscription; $299 with two-year subscription, plus $20 per month for content; volume discounts available.
Publishing tool kit: $995 (includes one reader and software).
One mono, 9.5-in. diagonal display.

Softbook has spent the most time figuring out how to network the electronic book with the Web and offers a variety of tools to publish your own content and distribute it on its books. The bad news is that these tools are somewhat confusing in terms of which content goes where. The good news is that Softbook has the best navigation and page-annotation aids.

Included in the price of the device is an Internet access account to obtain new content. Softbook comes with a built-in modem and a nice leather cover to protect its screen. It features three off-screen controls and has a display for both remaining battery life and memory usage.

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$399, plus the price of content (about $20 to $40 per month).
One mono, 5.5-in. diagonal display.

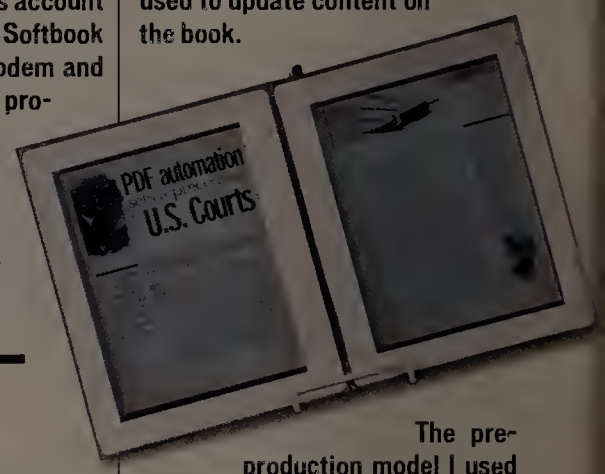
The Rocket is squarely aimed at the consumer market. It has the greatest number of titles to date, and the unit itself can be purchased at Barnes and Noble's online store. Its display has two default font sizes but can be customized for additional display settings. The Rocket can also display text in landscape or portrait, making it somewhat flexible.

The Rocket needs to be registered to capture your e-mail address, which is used to send notifications when you purchase new content. Viewing graphics and illustrations were difficult on the Rocket compared with the other electronic books. The Rocket's rechargeable battery lasted several hours. The device has four off-screen controls including one for changing the orientation of the display.

EB Dedicated Reader

Everybook Inc.
www.everybook.net
$1,500, plus cost of content.
Two color, 13-in. diagonal screens.

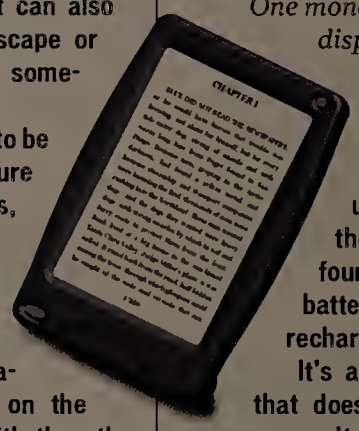
The EB Dedicated Reader's huge size (think of two laptop computers side by side) incorporates a full-blown computer running Linux and includes two PC Card slots. This also makes it the easiest to read because each page is the size of an 8.5-by-11-in. piece of paper. It's also the only electronic book to support the Adobe Acrobat PDF format as its native document format. Included in the price of the unit is an Internet access account that can be used to update content on the book.



The preproduction model I used had long lag times when turning pages. Everybook plans on fixing that before general release later this fall. It also plans to release a smaller version with 9-by-6-in. screens some time next year.

Millennium E-Reader

Librius.com Inc.
www.librius.com
Price not set but will be less than $200, plus cost of content.
One mono 6-in. diagonal display.



The Millennium is the smallest of the units tested and the only one of the four that uses AA batteries in addition to rechargeable ones.

It's also the only unit that doesn't use a touch screen. It has a series of controls on the back of the reader to control screen orientation, font size and the like. I found it the most difficult of the devices to use.

Like the Rocket, it connects to a PC via a serial port but doesn't use a docking cradle – just a simple connecting cord. I used an early preproduction model that was missing help screens and documentation, along with the connection software.

Librius is developing free software so its books can be read on a variety of devices including Palm Pilots and Windows CE machines. You will still have to pay for the content you download, however.

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My great grandpa fought a war with Japan.
Now I have a friend there and we are building
a cool Web site.
Chi, age 10
Mas, age 11
Inner city Chicago doesn't give [illegible]
much of a chance to see the world. [illegible]
why Oracle's Promise and [illegible]
volunteers put computers, [illegible]
software, and Internet connections [illegible]
3 economically challenged schools [illegible]
It's all part of Oracle's $100 million
commitment to education which has
placed over 5000 [illegible]
100 schools around the country, and [illegible]
world. So far [illegible] give more [illegible]
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Email us at promise@us.oracle.com
or come visit www.oracle.com/[illegible]
ORACLE'S PROMISE

BACK TO SCHOOL

AS WINDOWS 2000 entered its third beta test, Microsoft Corp. management made an extraordinary pronouncement: Among its new features is around-the-clock reliability. Windows NT 4.0 didn't have it — but Windows 2000 does, the company says.

Windows 2000 offers better security, improved crash-proofing and more robust, scalable configurations, according to Microsoft. It's also nothing like its predecessors: Windows 2000 changes nearly every important aspect of network management.

Because of that, educating information technology staff may become one of the most challenging aspects of a Windows 2000 migration.

Technology analyst **Jim Ryan** examines the changes Windows 2000 will bring to NT enterprises, and where IT managers should be putting their training dollars before they choose to begin what promises to be a lengthy — and potentially frustrating — migration process.

Field Report, page 80

Planning a Windows 2000 migration? Better add lots of training to your to-do list

By Jim Ryan

Continued from page 79

Microsoft shipped a half-million Windows 2000 CDs as part of its Corporate Preview Program 2000 a few weeks ago. For those seeing Windows 2000 for the first time, the changes were surprising: Microsoft designed its newest network operating system to compete in the demanding, around-the-clock corporate data center. The result bears more resemblance to enterprisc-class operating systems such as IBM's AIX or Hewlett-Packard Co.'s HP-UX than to Windows NT.

Preparing support staff to run a distributed, high-availability Windows 2000 network involves retraining. Even if a company expects to put off that migration until well after its year 2000 work is complete, training and planning to handle the changes in Windows 2000 should begin immediately.

Microsoft is working to accelerate the learning curve for its channel partners and IT customers. The company has already released an Official Curriculum guide for Windows 2000 and is offering extensive classroom training for Beta 3. Microsoft also launched a developer training and support initiative in March and committed $40 million for free and reduced-cost training in April.

To compete at the corporate level, Microsoft is abandoning its LAN/metropolitan-area network roots and adopting a native TCP/IP foundation. Although the default Windows 2000 "mixed mode" installation provides backward compatibility for almost all Windows NT 4.0 capabilities, a "pure" Windows 2000 network relies solely on the TCP/IP protocol suite.

In addition to the architectural changes at the network level, new tools like Security Configuration Manager (SCM), Group Policy Editor and Active Directory Manager will replace Server Manager and User Manager.

Step 1: Train the Migration Team

The migration team should include project leaders from IT management, network support, software development, security and the help desk. It should also include a representative from the user community. It will need to begin training at least a year prior to the first migration steps, because proper implementation of Windows 2000 may require redesigning a significant part of a company's logical (and possibly physical) network.

Windows 2000 will change the way your staff performs:

- Domain mapping
- Domain name service
- Security systems
- Directory services
- Group policy editing
- Remote access

Logical Windows NT domain structures and mechanisms such as Primary Domain Controllers, Backup Domain Controllers, master domains, resource domains, NT domain-trust relationships and NT authentication will be phased out during the migration process. Instead, Windows 2000 domains map to Domain Name System (DNS) domains, where user authentication and domain-trust relationships are based on Kerberos, an electronic authentication method.

Expect veteran staffers to take three to four months to fully understand and plan a network infrastructure using the new domain mapping scheme, Kerberos authentication, trust relationships and Active Directory operation. Network redesign and development of migration and training plans for the rest of your technical staff could take an additional three to four months.

The best subjects for the migration team to study are Domain Namespace design, Active Directory, Kerberos, Dynamic DNS and TCP/IP network design. An excellent resource to get that group started is the self-paced training course, "Getting Ready for Microsoft Windows 2000, Course 1555." It contains more than a dozen Windows 2000 white papers and is available as a free download from *http://microsoft.com/train_cert/courses/1555afinal.htm.*

Step 2: Train the Network Staff

A few months into the training of the migration team, plan to start training the network team. As the migration team begins to understand the nature of the new domain architecture, it will see that the existing logical and physical network design may need to be revised to deal with issues such as Domain boundary changes and Active Directory replication across slow, wide-area network links.

The network team will also need to start work on upgrading existing Unix domain name servers to Berkeley Internet Naming Daemon 8.1.1 or higher to add "dynamic" capabilities so the Unix Dynamic Domain Name System (DDNS) servers can work seamlessly with Active Directory.

Training areas for the network team should include Windows 2000 Domain Architecture, DDNS, Active Directory, Kerberos, Dynamic Host Configuration Protocol, Windows Internet Naming Service, SCM and TCP/IP. Those areas are probably best reviewed on an individual basis, with a goal of attending one or more classroom sessions from Microsoft's Official Curriculum for Windows 2000.

Step 3: Train the Help Desk Staff

Help desk staff have the most to gain from a Windows 2000 migration. They'll hopefully benefit from the reliability enhancements found in Windows Installer, which manages all application installations and offers the ability to roll back to the prior machine state in the event of a failed installation. Installer also promises self-repairing applications that recognize when critical Dynamic Link Libraries (DLL) have been damaged or overwritten; it automatically replaces them so the user is never aware that a problem existed.

Windows Media Training Server: A Great Idea That Needs Work

BY CYNTHIA MORGAN

Windows 2000 performs network management better than its predecessor . . . if you can just figure out where to find — and how to use — the nifty new tools in the package.

Give Microsoft Corp. credit for acknowledging that's a problem, not a feature. Be even happier that Microsoft decided to offer at least a partial fix for the problem before Windows 2000 ships, possibly preventing naïve network administrators from finding themselves in deep kimchee.

REVIEW

The Windows Media Training Server, jointly offered by Microsoft and Compaq Computer Corp., is a multimedia server stuffed with slide presentations, video and text on Windows 2000 and other network puzzlers. For less than $4,000, you can slip it into an existing network with relatively little fuss, providing on-the-spot technical instructions to anyone on your network.

It's also a handy way to jump-start a rich media intranet, which, let's face it, is becoming almost inevitable for corporate systems. There's about 1G byte left of the training server's 9.1G-byte hard drive that can be used for your own conference and training session recordings, and you can add additional hard drives as needed.

Wisely, Microsoft used Windows NT 4.0 with Service Pack 4 to build the training server, so you won't need to learn Windows 2000 to run the server that will teach you how to run Windows 2000. The paint's barely dry on Windows Media Services 3 (the new name for the former NetShow Services 3.01, which this actually is), but Version 4 is already available as a beta from Microsoft and is probably a more stable choice.

The machine arrived preconfigured, so setup was a matter of plugging everything in, turning it on and setting network connections. It's configured to work behind a firewall on an intranet; setting it up to cross the firewall takes a bit more

WINDOWS MEDIA TRAINING SERVER

SPECS

- Compaq ProLiant 800
- 350-MHz Pentium II processor
- 128M bytes RAM
- 9.1G-byte hard drive

COST

- $4,000 as tested

OVERALL GRADE: C+

PROS

Turnkey video/audio server for your network gives you a jump start on deploying interactive instruction on your intranet.

CONS

Content of variable quantity; very limited search capabilities.

CONTACT

Microsoft Corp.
www.microsoft.com/windows/windowsmedia

Compaq Computer Corp.
www.compaq.com/activeanswers

Another new tool, System File Protection, detects whether an operating system file is damaged or deleted and automatically restores the correct version of the file. And new side-by-side components allow applications to run their own version of a DLL rather than share a similar DLL that's already installed on the system. Those new features should eliminate most DLL conflicts — a common cause of Windows crashes.

Help desk staff will need to become proficient in new desktop management tools such as IntelliMirror. IntelliMirror is a set of features found in Windows 2000 Professional and Advanced Server that lets users' data, software and configuration settings follow them as they roam about the network. Lastly, help desk staff must understand SCM, which manages many of the user access features formerly controlled by NT 4.0's User Manager tool.

Step 4: Train the Security Staff

Security staffers who have experience with Windows NT 4.0 Service Pack 4 have probably already seen the most important changes in store for them.

NT 4.0 Service Pack 4 modified the structure of the Security Account Manager (SAM) to match the Windows 2000 SAM, and added SCM. It combines the capabilities of several earlier tools, such as User Manager, Server Manager and New Technology File System Access Control Lists, to provide a single tool that gives a better overview of network security settings. Security staff should also gain an understanding of Kerberos, Remote Authentication Dial-In User Service Radius and the Internet Protocol Security protocol.

Microsoft developed Windows 2000 with the business user in mind. It has worked hard to solve problems with stability, reliability, user management, application installation and maintenance, security and many other areas that overwhelm IT resources.

For most companies, migrating to Windows 2000 will be a worthwhile trip. But to keep it from being long and frustrating, don't forget your training road map.

Significant Changes in Store for NT Managers

Architectural differences between Windows NT 4.0 and Windows 2000 will create significant training issues for IT managers:

COMPONENT	WHAT CHANGES IN THE MIGRATION		ISSUES	STAFF AFFECTED
	(Old) **Windows NT 4.0**	(New) **Windows 2000**		
Domain Structures	Primary Domain Controller Backup Domain Controller	Multi Master	New replication model	Network Help desk Security
Domain Types	Master/Resource	Domain trees Organizational units	May require logical (and possibly physical) network redesign	Network Help desk Security
Network Transport Methods	NetBEUI/NBT	TCP/IP	New "rules of the road"	Network Help desk
Network Locator Service	Browser WINS	Active Directory Dynamic DNS	Forget WINS; learn Active Directory / DDNS	Network Help desk
Network Management	Server Manager	Active Directory Manager	Need to learn new tool and new technology	Network Security
Network Management	User Manager	Active Directory Manager SCM	Need to learn new tool and new technology	Network Help desk Security
Authentication	NT authentication	Kerberos	Forget NT authentication rules; learn Kerberos rules	Security
Security: Trust Relationships	NT trusts	Kerberos	Forget NT trusts; learn Kerberos, transitive trusts	Security

time but isn't difficult. The system itself lacks the sound equipment necessary to view the content locally, but because it's a server, you probably won't do much of that, anyway.

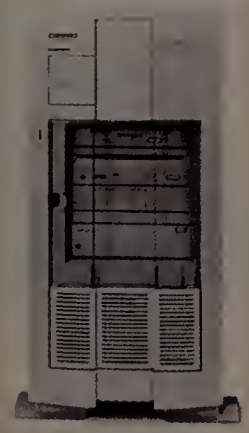
The key to the usefulness of this system is, of course, its ability to teach your IT staff what it needs to know about Windows 2000 migration issues, BackOffice problems and the like. But that's precisely where it falls short.

Most of the video, audio and slide sequences are canned presentations by Microsoft employees and partners; the best are taken directly from Microsoft's own online tutorials. Some subjects are highly informative pieces that every NT technician should see. Others are little more than marketing hype.

Most topics are presented as active Web pages along the lines of a PowerPoint presentation: a video segment at top left, an outline of the slides running down the left side of the page and the slides themselves, with a navigation bar, filling up the right half of the screen. But the videos simply show the presenter on-stage or behind a podium, or repeat the slideshow already on the right side of the page. They are, quite frankly, a waste of bandwidth; sequences illustrating the subject matter would have been far more useful.

I got the feeling that someone simply dumped the presentations on to the server without much editing or indexing. For example, the navigation outline down the left-hand side of the page parroted the sometimes meaningless title of the slide. I often ran into four or five slides entitled "Network Administration" or something similar, which told me nothing about the content.

I searched for three subjects — Windows 2000 domain models, public-key infrastructures and WBEM — that should be of concern to IT managers contemplating a Windows 2000 migration, with mixed results. I found useful tutorials on domains, though more explicit instructions on how to manage domain modifications would have been nice.



TRAINING SERVER: Better content will make it more useful

Public-key infrastructure presentations offered insight into Windows 2000 security basics but very little meat on the mechanics of implementing a smart-card system.

I had trouble jumping ahead to desired topics because the Windows Media Player seemed determined to trudge through the entire presentation no matter how many times I clicked on a different topic.

Overall, the search capabilities were much too limited to be of much use. Topics were almost impossible to find unless they were explicitly mentioned in a presentation title. I couldn't find anything on "WBEM" searches, even though I'd seen mentions in several presentations.

I suspect I can add a better search tool, such as AltaVista's or one from Verity Inc., but Microsoft should have thought of that up front.

The Windows Media Training Server is a great idea; it's a good pair of training wheels for IT managers who want to add rich media services to the intranet. But in its present form, you'll wind up doing a lot of modifications to make it truly useful for your technical staff.

If Microsoft can do more than simply repurpose old presentation content, the company may turn a great idea into a great product.

www.where's

Now that you're Web-enabled, you have customers coming in over the Web, the phone, mail and fax. Here's how some leaders are linking everything from e-mail systems to call centers to give customers consistent information no matter how they contact you By Emily Kay

IF LARRY LEWIS has learned anything about serving customers over the Web, it's to ensure they can reach you whenever and however they choose. And, oh yeah — be careful what you promise.

"We'd posted [the ability to provide] 24-hour loan approvals," says Lewis, national services group executive vice president at Mortgage.com (formerly First Mortgage Network), an online mortgage broker and technology service provider in Plantation, Fla. "A request came in at 8 on a Saturday night and by Monday morning the borrower had been in [to the Web site] three times expecting that the loan should have been approved."

A Mortgage.com service rep contacted the borrower Monday morning to explain that the 24-hour period starts after Mortgage.com receives a formal application, not just an e-mail query. In the meantime, Lewis and his team set about clarifying Mortgage.com's policies and overhauling its customer-service capabilities.

That effort included linking all consumer communication through its homegrown CloserLink customer service and lead-tracking system. It runs on 12 Windows NT-based Dell Computer Corp. 6350 servers operating SQL server and Pervasive Software Inc.'s Btrieve databases.

For example, Mortgage.com wants to capture the e-mail addresses of potential borrowers who quit the site before filling out an application, he explains.

Web-enabled customer support is quickly becoming a competitive necessity. Fifty-seven percent of large companies now use the Internet to serve customers and 55% of those not now serving customers over the Web expect to do so by the end of next year, according to a survey of 100 customer-care executives at large companies. The study was conducted by The Yankee Group in Boston.

KeyCorp, a Cleveland-based financial services company, achieved a 364% return on its Web-enabled customer relationship management (CRM) investment within 14 months after going live in 1997, says Troy Thomas, a senior vice president at KeyCorp, which manages $80 billion in assets. Thomas declines to give specifics but says KeyCorp lowered its cost of marketing to new accounts and earned new revenue by cross-selling additional products to existing customers.

Market leader Siebel Systems Inc., Vantive Corp., Clarify Inc., Oracle Corp. and a host of other CRM and enterprise resource planning suppliers provide customer-support systems that promise to manage customer profiles, call center information and sales histories through each customer "touch" point. The systems also let consumers enter orders, track account status and solicit support via the Web as easily as by phone or in person.

MARK CIRILLI had to hire two consulting firms to design and install Sandella's Café's Web-enabled system because he has only one IT person on staff

Tough Reality

But the reality is far harder.

With his company undergoing rapid growth, Mark Cirilli last year wanted to give his sales reps a single interface to lead information. So Cirilli, chief financial officer at Sandella's Café in West Redding, Conn., decided to deploy Web-based client and server versions of the Saleslogix Corp. sales information system that the quick-sandwich shop

myorder?com

and coffee-café franchiser already operated.

"It made more sense to stay in the SalesLogix family instead of trying to integrate it into a new system with all those problems," Cirilli says.

As it was, Cirilli had to hire two consulting firms to design and install the Web-enabled system because he has only one information technology person on staff. Pat Cook, a consultant at Stamford, Conn.-based Robert Half Inc., is building a Web interface that sales reps will use to access customer data. Cook will oversee deployment of the Web-based portion of the system. That deployment is being done by New York reseller The Castle Group, which as of late June, was two weeks behind schedule. "It's a new product. They're gaining expertise in it and learning it and I'm pushing them," Cirilli says.

Web-enabling CRM systems also means providing Web access to data running on back-end transaction systems. For example, financial services institutions require additional links to third-party systems such as stock exchanges or clearinghouses.

Customers Enabled

At Scudder Investor Services Inc.'s Web site, customers can view their portfolios, track their accounts and transfer funds from one account to another. To support such capabilities, the Boston investment-management company maintains Art Technology Group's (ATG) Dynamo Relationship Commerce Web servers to create and track customers' online sessions. Enterprise Document Management System (EDMS) from Documentum Inc. stores and refreshes text-based or graphical content and a Sybase Inc. database captures customer profile and account data.

Dynamo and EDMS run on 30 Sun Microsystems Inc. Solaris-based Ultra 2 and Enterprise 4500 servers operating a Sybase Version 11.9.2 database.

Scudder used an application programming interface provided by DST Systems Inc. to link its applications to the DST system, which automates and feeds shareholder record-keeping and accounting functions to financial services institutions.

Because many units across Scudder share the data, "whatever channel a customer chooses to contact us on, that information is made available to each channel," says David Schwartz, e-commerce systems vice president at Scudder, which manages $280 billion in assets.

The most rigorous integration challenge involved maintaining application performance while linking Dynamo to EDMS to pull data directly from the document manager into the application server for Web display, Schwartz says. ATG completed the integration in four months, enabling the launch of Scudder.com in January. ATG and Documentum are still working on the performance issue.

Scudder took the custom integration route because no commercial product met its needs a year ago. Tying a Web-based customer-support system to Scudder's phalanx of platforms was critical because about 65% of Scudder's customers contact the company through electronic channels, according to Schwartz, who won't divulge integration costs.

Although Dynamo's Java-based application platform made it relatively easy for ATG to integrate Scudder's Web site with the required back ends, it was still a challenge to get the required time from Scudder employees who understood the back-end systems, according to Schwartz.

"It was a lot of work from dedicated people to get it all to work right," says Scudder e-commerce director Greg Titus.

KeyCorp chose IBM's DecisionEdge customer relationship data warehouse, which runs on four IBM OS/390 mainframes and a DB2 Version 5 database. The system combines hardware, software, consulting and services in one package that helps the bank leverage data about its 7 million customers. It can then more effectively cross-sell opportunities through its many delivery channels, including voice response units, direct mail, tellers and the Internet.

KeyCorp built its own KeyConnect middleware to tie DecisionEdge to the Web because no vendor can make real-time customer data available through all delivery channels, Thomas says.

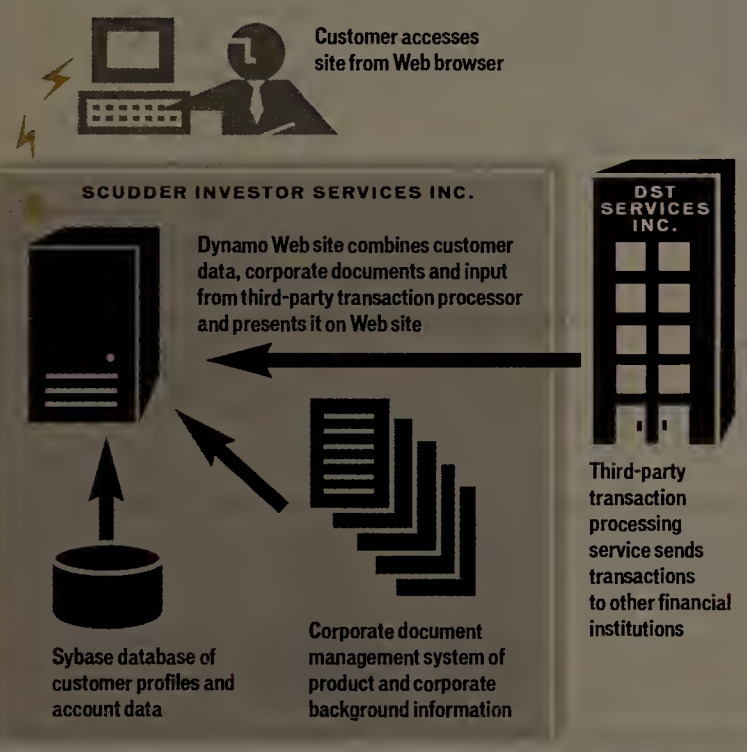
Although he won't disclose costs, Thomas says IBM's software was a cost-effective solution that required no retraining because KeyCorp already operated a DB2 environment.

It may be difficult, but companies must deliver excellent, uniform service over every channel that customers demand, and they're increasingly demanding Web-based support. Indeed, organizations that continue to do business "tomorrow the way they did it yesterday won't be players in the long run," Thomas says. "To stay in business, [Web-enabled customer service] is critical to us."

Kay writes about technology as a principal at Choice Communications, an editorial consulting firm in Chelmsford, Mass.

Making Customer Service Work Over the Web

It takes data from inside, and outside, your company



Angry E-Mailers Click Elsewhere

"A customer may place an order at noon and send an e-mail at 2 p.m. asking that the order go to a different address," says David Yashar, IT manager and webmaster at KaBloom, a five-store and Web-based business based in Boston. "Our deadline for placing next-day orders is 3 p.m. If I notice the e-mail at 4 p.m., that's not great for us."

That's a problem because Yashar tracks e-mail downloads only three times daily. KaBloom tries to work around that by using an e-mail filter in Qualcomm Inc.'s Eudora Pro Version 4.1 that constantly searches downloads.

New York-based market researcher Jupiter Communications LLC recently found that 51% of leading Web sites either never replied to their e-mails, did so after five days or simply had no e-mail address.

Jupiter suggests that companies implement "auto-acknowledge" software to tell customers their messages got through and when to expect responses. Yashar plans to evaluate management packages from vendors such as Brightware Inc. in Novato, Calif.

"We need to . . . handle large volumes of e-mail, get it to the appropriate people in the company, track it and respond to it," Yashar says. He now handles about 10 customer e-mail inquiries per day personally, but says he will need help if that grows to more than 50 inquiries.

Web-based customer service outsourcer eSupportNow LLC (eSN) in Boston hosts KaBloom's Web site. The company manages KaBloom's order-processing back-end transactions, including the call center, which is staffed by eSN employees.

– Emily Kay

The Year of the PC

Apple Computer drives effort to bring PCs into the business world

BY MARY BRANDEL

IF ASKED to pin down a birth year for the PC, many might choose 1977, the year Apple Computer Inc.'s Apple II, Commodore's PET and Tandy Corp.'s TSR-80 hit the market. PC kits were already available, but these three were the first to offer consumers out-of-the-box functionality, relatively speaking.

Of the three companies, Apple deserves the most credit for bringing PCs into the business world. The PET was like an overgrown calculator, with a keypad rather than a keyboard and no expansion capability. The TSR-80 was very popular — 10,000 were sold the first month — but it was mainly aimed at video game players and electronic hobbyists.

The Apple II, by contrast, was a complete system, with keyboard, memory, disk drive, terminal and power supply. It was also expandable, with eight slots for adding boards and peripherals.

COURTESY OF APPLE COMPUTER INC.

THE APPLE II was primed for the businessperson as well as the consumer

Novel Packaging

One subtle but significant reason for the Apple II's success was its packaging; company co-founder Steve Jobs had aesthetics in mind from the start. At a time when many competitive products looked like they had been screwed together in somebody's basement— with sheet metal boxes and nuts-and-bolts construction — Apple's molded plastic case "turned the computer into a consumer product that you could imagine being in somebody's living room," says Robert Lash, an original member of the Homebrew Computing Club [Technology Flashback, July 5].

In the Apple II's first year, 3,000 to 4,000 of the machines were sold, and the company ended its first year with $7 million in revenue. ◗

DEC's VAX Hits Market

BY MARY BRANDEL

In the mid-1970s, Digital Equipment Corp. was a successful $736 million company, churning out PDP minicomputers hand over fist. But were it not for the VAX, born in 1977, Digital might never have become the $14 billion giant that it was in its heyday.

As early as 1972, it was clear to at least one man at Digital — Gordon Bell — that the 16-bit PDP-11 wouldn't last the decade because of its small address space. With his leadership, a small group within Digital designed the 32-bit Virtual Address eXtension, or VAX machine. When the VAX 11/780 hit the market, it created a huge demand for the so-called superminicomputer.

"It was the first 32-bit, large-address, fast computer that could compete with almost any of the mainframes," Bell says. And although it rivaled a mainframe's power, it cost a lot less.

But what really turned customers' heads was the "VAX strategy." The strategy was that all VAXes — from workstations to departmental machines to mainframe-like configurations — would be compatible, running one operating system, either Digital's version of Unix or VMS. And everything would be networked together using a set of protocols, dubbed Decnet.

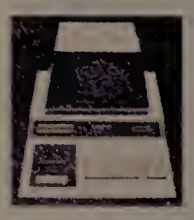
"Within the technical community, every lab bought their own VAX," Bell says. And then there was the business world. "The VAX unhooked IBM's hold on commercial computing," Bell says. "People said, Why are we going to buy mainframes when we can buy other computers a lot cheaper?"

The VAX remained popular through the mid-'80s, when it was overshadowed by Unix. However, it introduced some important ideas in computing that are still in use today, such as homogeneous computing and clustering groups of computers for more power. ◗

Brandel is a frequent contributor to Computerworld. *Contact her at marybrandel@norfolk-county.com.*

1977

Commodore International Inc. announces the PET microcomputer. It comes fully assembled, with either 4K or 8K bytes of memory.



German engineer Heinz Nixdorf purchases Massachusetts-based Entrex Inc. It becomes Nixdorf Computer Co., manufacturer of small computers.

Lawrence J. Ellison founds Oracle Corp. ▶

Jim Warren organizes the first West Coast Computer Faire in San Francisco. It becomes one of the major trade shows for the PC industry. Also during this year, the National Computer Conference is held in Dallas.

Boston Marathon runners' times are scored by a Honeywell computer system. ▶

1977 winner, Jerome Drayton

One of the first videotex systems, QUBE, is established by a joint effort between American Express Corp. and Warner Communications. It's switched off in 1984.

Julie Christie plays a woman who is impregnated by a computer in the movie *Demon Seed.*

Radio Shack, a division of Tandy Corp., announces the TRS-80, a desktop computer. The company sells 10,000 units in the first month of the computer's release. ▶

Teen-ager Jonathon Rotenberg founds the Boston Computer Society; the group voted to cease operations in 1996 after reaching a peak of more than 32,000 members in the early 1990s.

Bill Gates is arrested for reckless driving for the second time in New Mexico. He's caught running a stop sign and driving without a license. ▶

The U.S. government adopts IBM's data encryption standard to protect confidentiality within its agencies. It's also available to the public. There are 70 quadrillion possible combinations of the eight-number key for scrambling and unscrambling data.

TRS-80

Microsoft begins offering Basic on a single-copy basis.

Digital Equipment Corp. is the first computer company to connect to the Arpanet.

Kevin Mitnick begins tapping into data banks and destroying information. He also alters credit reports and disconnects the phones of celebrities.

Apple Computer is incorporated. Employees move from Steve Jobs' garage into an office on Stevens Creek Boulevard in Cupertino, Calif.

Bill Gates and Paul Allen sign an official partnership agreement.

Pertec Computer Corp. buys MITS and the Altair line for $6 million.

Microsoft ships Microsoft Fortran.

The first issue of *Personal Computing* is published, by David Bunnell.

Xerox Corp. buys Shugart Associates Inc. for $41 million.

Apple releases Applesoft, a version of Basic with floating-point capabilities. It's licensed from Microsoft.

Atari, owned by Warner Communications Inc., introduces the Atari Video Computer System (VCS), later renamed the Atari 2600.

One of the first fiber-optics communications system goes into service, in Chicago.

The US launches *Voyager II,* an unmanned spacecraft carrying a 12-in. copper phonograph record that contains greetings in several languages, samples of music and sounds from nature. The space shuttle *Enterprise* also takes its maiden voyage this year, separating from atop a Boeing 747 above the Mojave Desert and then landing at Edwards Air Force Base in California.

– Compiled by Laura Hunt

■ Flashback is produced with the assistance of The Computer Museum History Center in Mountain View, Calif.

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No Mystery In This Triangle

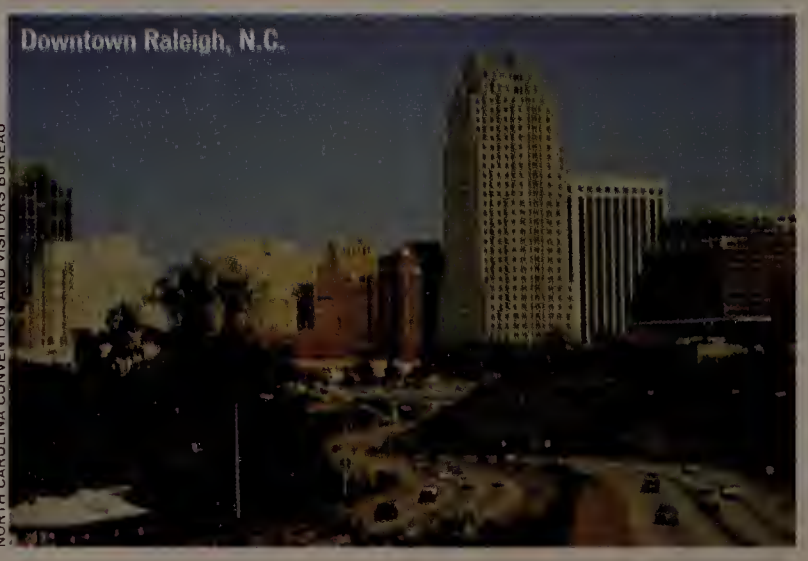
The only things that disappear for IT staff at the vendor companies in Research Triangle Park are the usual rigors of the long workday, standard benefits and conventional corporate culture
By Christine Willard

NORTH CAROLINA'S crystal ball was crystal clear 40 years ago when Research Triangle Park was established to develop high-tech businesses. This 2- by 10-mile area between Raleigh, Durham and Chapel Hill is now home to 134 businesses and 39,500 employees, anchored by the Big Three of IBM, Nortel Networks and Cisco Systems Inc.

"The shelf life of an IT professional [seeking a job] is five days," says Pam Moyers, senior manager of resource management at Nortel. "It's a talent war down here." She acknowledges that information technology professionals expect a lucrative package, with stock options and bonuses. On-site amenities like banking, dry cleaning and child care support personal career plans at Nortel, while SAS Institute Inc. offers a 35-hour workweek and unlimited munchies.

"People come here to gain weight," says Vivek Wadwa, CEO of Relativity Technologies Inc. in nearby Cary, a fast-growing community known to natives as a containment center for relocating Yankees. Relativity made local news recently when Wadwa made it policy not to allow suits and ties without his express prior approval. The company, which develops software to move large companies from older systems and Cobol to e-commerce in Java and C++, expects to hire 50 to 100 IT professionals before the end of March 2000.

Niche companies like Red Hat Software Inc., the only Linux reseller in the area, attract those with experience in their specialties. SAS, a software company that specializes in business decision, data warehousing and data mining, is known for its array of lifestyle benefits, including flexible work hours, extended lunch hours and on-site child care, medical and fitness centers. "We encourage people to have a life outside of work," says David Russo, human resources vice president.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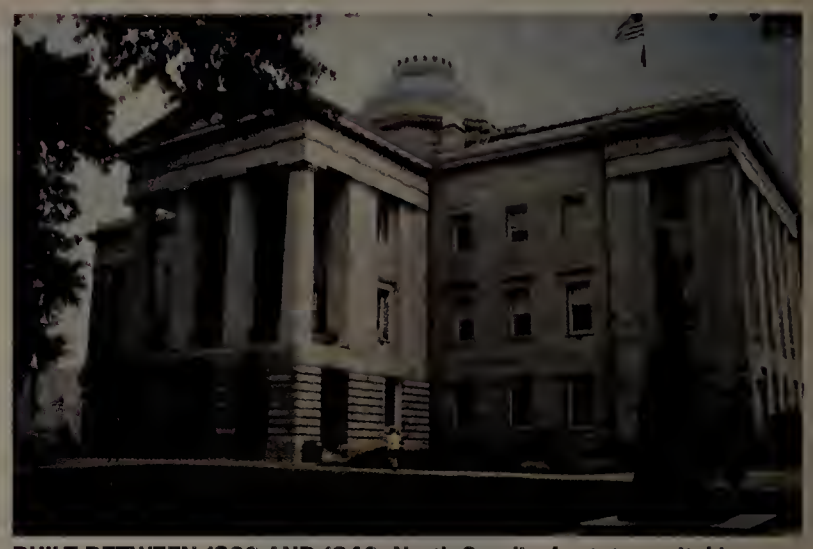
BUILT BETWEEN 1833 AND 1840, North Carolina's state capitol is one of the best-preserved examples of a civic building in the Greek Revival style of architecture

"IT salaries are comfortable. Most of the people make enough to be able to afford a good house," says Wadwa, who says a C++ programmer with five or more years of experience can expect a salary of about $60,000. "People are getting expensive," says Rowland Archer, president and CEO of HAHT Software Inc., which creates prepackaged enterprise resource planning systems to connect to the Web. "There's a reality gap between what the surveys report and what we actually have to pay."

"Venture capital, historically swirled into Silicon Valley's vortex, is flowing. The park has many true IT companies that are proving themselves early on," says Bill Spruill, director of programs at the Center for Entrepreneurial Development, citing SciQuest.com Inc., which recently won $37.5 million in venture capital, and OpenSite Technologies Inc., which received $24 million. SciQuest.com is an Internet source for scientific and electronic purchasing products. OpenSite is the market leader in Internet auction technology.

"It's fun playing in the heart of the Internet Revolution," Nortel's Moyers says. ◗

Willard is a freelance writer in Los Osos, Calif.

Before You Go

Have a job! Despite any hype to the contrary, finding the right match between your skills and a compatible company can take some time. Loading it all on a truck when the weather gets cold can make relocation expensive and nerve-racking.

Check out *www.rtp.org*, which links to all Research Triangle Park company Web sites, as well as the *Raleigh News & Observer*, which posts its Sunday classified ads on Saturday night, and the *Chapel Hill News*.

Real estate information and other helpful tips are available at *www.citysearch.com*, and additional job listings can be accessed at *www.jobsearch.com*. General information about the state and area is available at *www2.homefair.com*. – *Christine Willard*

Personality and Professional Litmus Test

Just about anyone but the most keyed-up techie committed to an intense urban lifestyle can find plenty of convivial work and social life in North Carolina's Research Triangle Park area.

The nightlife has acquired the sophistication that comes with the influx of educated professionals who have arrived in recent years. A lot of alternative bands are making it from North Carolina, says Christopher Laney, marketing vice president at Questcon in nearby Greensboro.

Start-ups are nipping at big companies and their hefty benefits with the thrill of being involved in a new venture without losing anything if it doesn't work out.

"You've still got your talents," shrugs Bill Spruill, director of programs at the Center for Entrepreneurial Development. And stock options, especially before the initial public offering, can put dollar signs in your e-mail.

Telecommunications is especially hot, with e-commerce and pharmaceuticals also crackling. The convergence of data, video and voice is creating opportunities at Cisco Systems Inc., third of the Big Three in the park itself, with 1,200 employees. Object-oriented skills, C++, LAN/WAN, the Internet programming language HTML and Unix continue to offer more demand than supply.

IBM, the largest employer in the area with more than 14,000 employees in 30 business operations, has seen 46% revenue growth in services between 1997 and 1999. The area now constitutes IBM's largest site in the world. It anticipates steady growth, looking for people in software and hardware development and services.

With the Blue Ridge mountains a few hours drive to the west and Atlantic beaches to the east, you can choose the environment to suit your whim. The mild climate provides the "perfect blend of New England and Florida," says Brad Moses, a principal at Information Systems Professionals in Raleigh. – *Christine Willard*

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Consulting Associate needed by Massachusetts-based Computer Products Co. for job at Blue Bell, PA location. To participate in applic analysis, dsgn, testing & documentation for an RDBMS-based applic and dvlp C/S applics using Oracle tools. Must have Masters in Comp Sci, MIS or related field. Respond by resume to: HR Dept, Compaq Computer Corp., 129 Parker St, PK03-2/31K, Maynard, MA 01754-2199.

SOFTWARE ENGINEER to design, develop, implement, test, maintain and support software for various business and commercial applications, focusing on Internet electronic commerce (e-commerce) and Web development using Active Server Pages, VB Script, JavaScript, Active X, COM, DCOM, IIS, MTS, Visual Studio, Oracle, Forms, Reports and SQL in Windows95/NT and UNIX environments. Require: Master's degree in Computer Science, Economics, Business Management, or a closely related field, with two years of experience in the job offered or as a Programmer/Analyst. Extensive travel on assignment to various client sites within the U.S. is required. Salary: $70,000 per year, 8 am to 5pm, M-F. Send resume to: Raghavendra Kulkarni, President, Pro Softnet Corporation, 3235 Satellite Blvd., Bldg. 400, Suite 300, Duluth, GA 30096; Attn: Job BG.

SOFTWARE ENGINEER to provide on-site consulting in design and development of web sites using Microsoft Site Server Commerce Edition and database systems using software engineering techniques of RDBMS; develop complete server site solutions from design document and functional descriptions; develop applications using SQL Server database, server side scripting language, web server API (NSAPI or ISAPI) creation tools, ASP/Visual InterDev, MS site server commerce and order processing pipeline customization; develop client/server applications using object oriented programming, Visual Basic, Visual C++ on Windows NT operating system. Require: M.S. in Computer Science/Engineering and two years experience in the described job duties or as Technical Consultant. 40% travel required to customer's sites within the United States. Salary: $60,000 per year, 8 am to 5 pm, M-F. Apply with resume to: President, TechSource Service Corporation, 100 Galleria Parkway, Suite 460, Atlanta, GA 30339.

Network Planning Analyst Telecomet Inc., a NY based telecommunications engineering company, which serves the needs of companies requiring IT and communications Solutions, presently requires the services of a Network Planning Analyst. The successful candidates will: Plan, monitor and evaluate performance of network systems and make recommendations for improvements/upgrades. Assist in developing technical standards and application interfaces. Provide technical assistance and resolution of network problems. Req'd: MS Computer Sci, Math or Engineering + 1 yr exp in job offered or related IT occupation. The employer will also accept applicants w/ a Bachelor's degree in aforementioned fields + 5 yrs exp. Must have knowledge of NT, NetWare, LAN, and UNIX which may be attained either through education or experience. To apply, send resume to: Telecomet Inc. HR Specialist, 375 Park Ave., 7th floor, NY, NY 10152.

SENIOR SOFTWARE DEVELOPER: Design and develop client/server applications in open environment including designing and developing GUI, functionality and database, performance systems analysis and designing, developing and testing customized systems. Analysis, design and development of three-tier object oriented client/server communication systems. Analyze and design business processes through data modeling and process modeling. Requires: BS in Computer Science and 1 1/2 years experience in developing 3 tier client/server systems. Knowledge of C programming in UNIX environment including distributed programming using Remote Procedure Calls. Skills in database Administration services for ORACLE, Oracle PL/SQL programming and UNIX Shell scripting. Ability to develop GUIs in Visual Basic and in connectivity tools including ODBC. Good communication skills. 40 hrs/wk (9 to 5); $60,000/yr. Send 2 resumes/respond to Georgia Department of Labor, Job Order #GA 6272923, 2943 N. Druid Hill Road, Atlanta, GA 30329 or nearest Department of Labor Field Service Office.

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Integration Engineer needed by Boston, MA Co. involved in Dsgn & Dvlpmt of Computerized Speech Systems. Must have Bach or equiv in Electrical Engg or Comp Sci and 4 yrs exp in speech process technologies & applics using C/C++ for UNIX & Win NT, including computer telephony platforms & applics. Respond by resume to: HR Dept, SpeechWorks International, Inc, 695 Atlantic Ave, 2nd Flr, Boston, MA 02111.

Software Consultant needed by Business & Technology Solutions Co. in Woburn, MA. Must have MS in CS, Math, Physics or related and 1 yr software experience. Respond by resume to: Cohesive Technology Solutions, Inc, Attn: Catherine McNamara - HR Manager, 444 Washington St, Ste 210, Woburn, MA 01801.

SENIOR SOFTWARE DEVELOPER: Design and develop client /server applications in open environment including designing and developing GUI and databases performance systems analysis, and designing, testing, installing, and maintaining customized systems. Analysis design, development and implementation of three-tier object-oriented client/server communication systems. Analyze and design business processes through data modeling and process modeling. Requires: M.S. in Computer Science Electrical Engineering, or related field. Knowledge, skill and ability in UNIX, C, C++, Windows, Unix shell and utilities, X-Windows/Motif, Tcl/Tk, and object-oriented programming. Good communication skills. 40 hrs/wk (9 to 5); $81,300/yr. Send two resumes/response to Case # 19982012, Box 8968, Boston, MA 02114.

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Software Development Engineer (2 openings) For company developing, manufacturing & selling carrier class wide area network equipment, resp. for assisting in adding IP protocol features to & debugging IP protocol problems w/ router product; designing, implementing & debugging IP multicast touring protocols for router product line; supporting scaling of router protocol software for use in large ISP internets. Reqs: Master's degree in Comp. Sci or related field. 2yrs. exp. in job offered. Proficiency in embedded software devept. w/ C & C++ on a multitasking operating system. 40hrs/wk. Send resumes to CW-I-11555, 500 Old Connecticut Path, Framingham, MA 01701.

Programmer/Analyst needed by Computer Services Co. in Parsippany, NJ. Must have Bachelors in Comp Sci, Comp Engg or Elec Engg and 1 yr exp planning, dvlpg, testing & documenting comp. s/ware using C/ C++ and object-oriented methodologies in Win NT and UNIX envrmts. Respond by resume to: HR Dept, Lapis Software Associates, Inc, 601 Jefferson Rd, Parsippany, NJ 07054.

Economic Analyst - Utilizing knowledge of consumer economics, conduct research to aid in solution of problems arising from planning, inventory & distribution of consumer goods & services. Study marketing & consumer data by applying various econometric & statistical techniques. Obtain & analyze data using SAS, JCL, MVS, COBOL & computer programming skills. Solve problems & formulate recommendations to company management. Reqs: Masters in Comp. Science & undergrad degree in Consumer Sciences or a Masters in Consumer Sciences & undergrad degree in Comp Science & 2 years exp in the job offered or as a Research Assist. or Research Assoc. 2 years exp must have been gained in a consumer or textile related field using econometric & statistical tools & exp with mainframe, SAS/BASE, SAS/STAT, SAS/MACRO, SAS/ETS, JCL, TSO/MVS, COBOL & computer programming skills. Salary $55,570/yr M-F, 8a - 5p. Applicants must submit 2 resumes to Regina D Ratteree, E&T Technical Services, SCESC-SC2000930, PO Box 1406, Columbia, SC 29202. Reference Job Order #SC2000930. Job location: within Greenville/Spartanburg, SC metropolitan statistical area.

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Software Engineer needed to design, develop & implement business software applications relating to telecommunications in a UNIX, Sun OS and Windows NT environment using ORACLE/INFORMIX as a relational database management system (RDBMS). Re-engineer legacy applications to client server architecture using generic algorithms, Object Oriented Technology (OOT)/C++ and Pro*C. Utilize SQL query optimization and PL/SQL for data loading/aggregation. Provide technical support. Min Req: BSCS, or equivalent & 5+ yrs. of progressive work exp. or MSCS, or equivalent & 1+ yr. of exp. 1+ yrs. of exp. in UNIX, Informix, C++, Pro*C, SQL a must. Salary: 80,000/yr., 40 hrs/wk. Must have proof of legal authority to work in the U.S. Send resume Attn: Som Bhattacharya, System Edge USA, LLC., 811 Seffert Street., Philadelphia, PA 19128.

Sr. Application Designer/Developer needed by Clothing & Accessories Mftr in North Bergen, NJ. Must have Bachelors in Electronics, Digital Dsgn, Comp Sci, Engg or Math and 2 yrs exp in system analysis, d/base dsgn, system dsgn, s/ware dvlpmt, testing, documentation & implmntn support for new & existing applics using Oracle Designer 2000 & VB 5.0. Respond to: Liz Claiborne, Inc, Attn: Maryclaire Dominguez, One Claiborne Ave, N. Bergen, NJ 07047.

Software Engineer wanted by S/ware Dvlpmt & Consulting Co. in Germantown, TN for work locs throughout US. Provide func'l & empirical analysis related to dsgn/dvlpmt/implmtn of internet, intranet & enterprise s/ware solutions using object oriented & GUI dsgn methodologies, JAVA, JAVA events, JAVA AWT, JAVA JDK, JAVA RMI, JDBC, C++, SQL & related d/bases. Must have Masters in Engg or Comp Sci & 3 yrs s/ware dvlpmt exp. (Bach +5 yrs progressive exp also acceptable). Respond to: HR Dept., Cook Systems International, Inc., Atrium 11, 6799 Great Oaks Rd., Ste 200, Germantown, TN 38138.

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Senior Software Engineer (2 openings): Design, develop and implement software systems to determine feasibility of design and directs software testing procedures, programming and documentation using relational data base management systems (RDBMS). Work requires extensive travel and frequent relocation. Must have 1 year of experience in job offered or as a computer professional as well as 1 year of experience using 1 from Group A and 2 from Group B **OR** 1 from A and 1 from B and 1 from **C OR 1** from A and 2 from C. A) DB2, FoxPro, Informix, Ingres, MS-Access, Oracle, Paradox, Sybase and Unify; B) AIX, DOS, HP-UX, MVS, Novell, OS/2, Sun OS, UNIX, VAX/VMS, Windows; C) 4GL, APT, C, C++, COBOL, Case Tools, C Shell, Crystal Reports, E-SOL, Easytrieve, JAVA, ODBC, PowerBuilder, PowerDesigner, Power J, Power++, S-Designer, SOL, Shell Script, Visual Basic. Master's degree in one of several limited fields: Computer Sci/Apps, Eng., Chem., Math, Physics or a scientific or business related field. Will accept B.S. degree with five years of experience as computer professional. Salary is $75,000 per/yr, 40 hrs/wk., 9:00-5:00 p.m. Please submit resumes to: Ms. Barbara Cole, Supervisor, Greene County Team PA Career Link, 4 West High Street, Waynesburg, PA 15370. Reference Job Order No.: 8052460.

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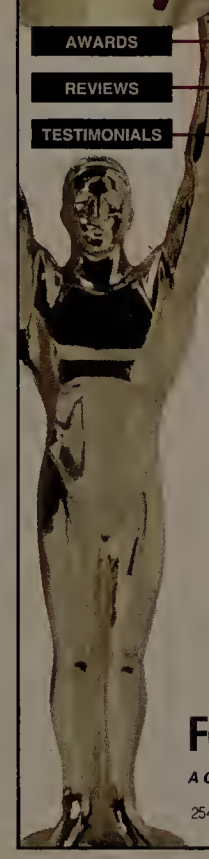

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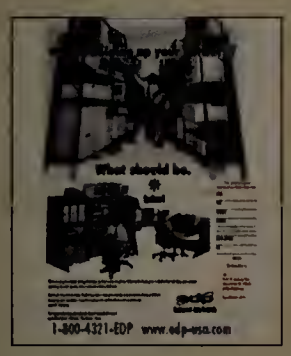

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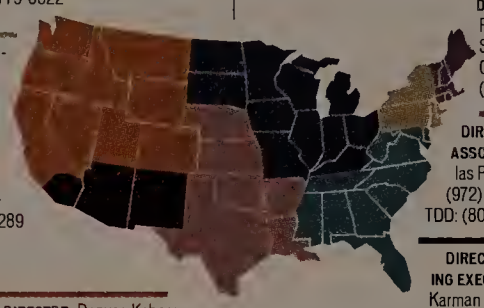

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Web Services Hot, But Year 2000's Not

Analysts predict steady growth for tech services but flat revenue for Y2K

BY AMY MALLOY

SERVICE is everything, especially if you're thinking about investing. The technology services industry is expected to grow in double digits at least through 2002 as more customers outsource, creating a recurring revenue stream for service providers, according to analysts.

The category includes everything from staffing companies to consulting firms, but Internet-related providers should do particularly well, analysts say.

David Keil, senior vice president at Robinson Humphrey in Atlanta, mentions Appnet Systems Inc. (Nasdaq: APNT), which hit the market last month with an initial public offering of $12 per share.

The price had risen to $21.25 per share by last Wednesday — just three and a half weeks later.

A report released by Merrill Lynch & Co. earlier this month called the Internet attractive to large players such as Computer Sciences Corp. (NYSE:CSC), Electronic Data Systems Corp. (NYSE:EDS) and IBM (NYSE:IBM), as well as some newer, more focused entrants.

INDUSTRY ALMANAC

Mark D'Annolfo, managing director at Adam Harkness & Hill in Boston, says Internet services and network services companies are experiencing huge demand and valuations at the same time year 2000-focused vendors and staffing vendors are suffering.

Two to Watch

D'Annolfo points to International Network Services (Nasdaq:INSS) and Whittman-Hart Inc. (Nasdaq:WHIT) as two companies that are making effective transitions from the client/server market to the Internet.

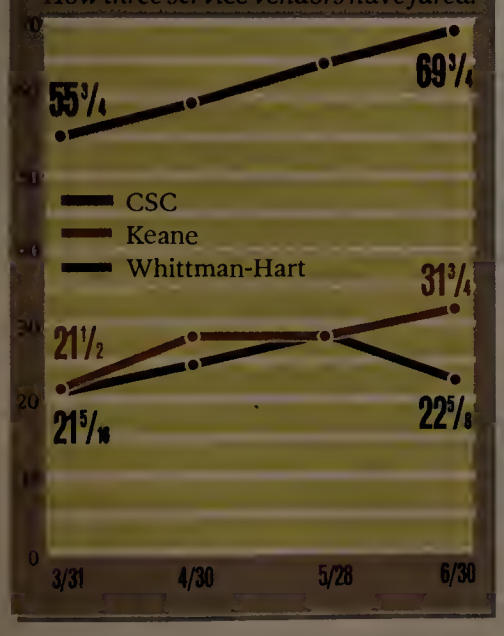
The lackluster performance of Y2K service and staffing vendors should continue through year's end, says Mark Jordan, a vice president at A. G. Edwards & Sons Inc. in St. Louis.

For example, Keane Inc. (AMEX: KEA) announced lower-than-expected earnings last quarter, and its stock continues to fall.

Jordan predicts the services market as a whole should return to normal after Jan. 1.

Service Soars

How three service vendors have fared:



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SOFTWARE UP 5.2%						
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AZPN	56.87	6.12	Aspen Technology Inc.	12.38	-0.88	-6.6
ADSK	49.43	21.62	Autodesk Inc.	27.50	-1.25	-4.3
AVIO	38.87	11.06	Avid Technology	18.25	-0.25	-1.4
BOBJ	42.50	6.12	Businesss Objects S.A	41.63	5.06	13.8
CDN	36.00	10.62	Cadence Design Systems	18.81	2.56	19.3
CBTSY	63.87	6.68	CBT Group Plc.	23.50	1.44	6.5
CHKPF	60.25	10.87	Checkpoint Software Tech.	58.63	-0.75	-1.3
CTXS	65.25	23.12	Citrix Systems Inc. (H)	64.03	3.34	5.5
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ORCL	41.18	12.25	Oracle Corp.	39.31	0.50	1.3
PMTC	22.25	8.50	Parametric Technology Corp.	15.75	1.94	14.0
PSFT	50.81	11.50	PeopleSoft Inc.	16.06	-0.81	-4.8
PIXR	56.37	27.50	Pixar	50.00	2.38	5.0
RATL	40.00	10.50	Rational Software Corp. (H)	35.06	-1.94	-5.2
SAP	60.12	23.75	SAP AG	34.13	1.31	4.0
SCUR	29.00	2.25	Secure Computing Corp.	3.81	-0.44	-10.3
SE	46.43	20.12	Sterling Commerce Inc.	28.44	0.75	2.7
SSW	32.81	18.56	Sterling Software Inc.	26.56	1.63	6.5
SDRC	23.43	7.50	Structural Dynamics Research	19.66	0.66	3.5
SYBS	13.37	4.50	Sybase Inc. (H)	11.50	0.88	8.2
SYMC	29.94	8.68	Symantec Corp. (H)	29.94	2.44	8.9
SNPS	62.25	24.50	Synopsis	62.25	2.69	4.5
SCTC	30.87	7.81	Systems & Computer Technology	18.50	2.25	13.8
BAANF	43.62	6.87	The Baan Co. N.V.	15.50	0.00	0.0
VNTV	15.81	5.00	The Vantive Corp.	9.84	-0.16	-1.6
TSAI	51.00	26.00	Trans. Sys. Arch.	38.31	-0.31	-0.8
VRTS	60.25	11.87	Veritas Software Corp. (H)	60.25	7.88	15.0
WIND	34.43	11.25	Wind River Systems Inc.	16.81	2.19	15.0
TELECOMMUNICATIONS CARRIERS UP 5.5%						
AT	74.56	38.25	Alltel Corp.	71.81	1.19	1.7
AIT	76.56	43.37	Ameritech Corp. (H)	76.56	5.00	7.0
ANDW	21.75	10.37	Andrew Corp. (H)	21.75	3.06	16.4
T	64.12	32.25	AT&T	55.50	-2.38	-4.1
BCE	52.50	25.62	BCE Inc. (H)	51.75	2.44	4.9
BEL	66.63	40.43	Bell Atlantic (H)	66.63	4.56	7.4
BLS	50.00	32.12	Bell South	45.13	-0.06	-0.1
CSN	26.50	8.50	Cincinnati Bell Inc.	26.00	1.63	6.7
CMCSK	42.56	16.81	Comcast	39.50	-0.25	-0.6
CQ	39.62	21.75	Comsat Corp.	36.00	1.81	5.3
COX	44.43	20.75	Cox Communications Inc.	39.00	-1.50	-3.7
GSTRF	33.00	8.31	Globalstar Telecom. Ltd. (H)	30.63	4.88	18.9
GTE	77.94	46.56	GTE Corp. (H)	77.94	5.31	7.3
NXTL	56.18	15.37	Nextel Communications (H)	56.00	6.03	12.1
SPDT	54.00	26.37	Panamsat	42.38	3.00	7.6
QCOM	158.00	18.87	Qualcomm (H)	158.00	10.00	6.8
SBC	59.93	35.00	SBC Communications	59.13	3.44	6.2
FDN	57.43	27.18	Sprint Corp.	52.56	1.94	3.8
TDS	78.38	30.62	Telephone and Data Systems	78.38	5.19	7.1
USW	66.00	47.00	US West	59.06	1.06	1.8
VIA	48.75	24.62	Viacom	44.69	-0.69	-1.5
WCII	62.50	10.25	Winstar Communications Inc. (H)	62.50	8.63	16.0
WCOM	96.75	39.00	MCI Worldcom Inc.	90.31	0.56	0.6
SERVICES UP 4.3%						
ACXM	31.25	16.50	Acxiom Corp.	29.31	1.31	4.7
ACS	53.00	22.37	Affiliated Computer Servs	51.56	-0.56	-1.1
AMSY	40.25	19.25	American Mgt. Systems	30.25	0.19	0.6
AUD	46.87	31.75	Automatic Data Processing	44.25	0.94	2.2
BSYS	60.87	35.37	Bisys Group Inc.	56.38	-2.06	-3.5
CATP	57.50	10.62	Cambridge Technology Ptnrs	19.69	2.88	17.1
CEN	40.50	24.00	Ceridian	33.13	1.69	5.4
CBR	40.87	13.31	Ciber Inc.	17.81	0.81	4.8
CDD	30.87	10.75	Comdisco	25.19	-0.25	-1.0
CHRZ	43.87	9.25	Computer Horizons Corp.	13.38	0.50	3.9
CSC	74.87	46.25	Computer Sciences	72.31	3.25	4.7
DST	70.56	34.00	Dst Systems Inc.	67.63	0.19	0.3
EDS	66.38	30.43	Electronic Data Systems (H)	66.38	3.56	5.7
FDC	50.50	19.68	First Data Group (H)	49.25	-0.50	-1.0
FISV	40.75	24.62	Fiserv	35.00	3.81	12.2
IT	34.12	17.31	Gartner Group	20.81	0.00	0.0
KEA	59.93	17.25	Keane	27.13	6.50	31.5
NDC	55.25	26.18	National Data	50.75	2.63	5.5
PAYX	36.75	24.18	Paychex Inc.	32.38	0.00	0.0
REGI	20.12	4.00	Renaissance Worldwide	7.69	0.25	3.4
REY	24.62	12.62	Reynolds & Reynolds (H)	24.56	0.69	2.9
SFE	120.00	17.12	Safegard Scientifics	72.06	2.25	3.0
SAPE	82.87	24.25	Sapient Corp.	54.44	5.19	10.5
SMS	86.50	40.06	Shared Medical Systems	61.19	3.81	6.6
SOS	41.93	21.68	Sungaid Data Systems	31.50	-2.81	-8.2
SYNT	29.94	8.68	Syntel Inc. (H)	29.94	2.44	8.9
TECD	53.12	14.50	Tech Data	44.50	6.25	16.3
TSS	26.25	14.43	Total System Services Inc.	17.94	-0.94	-5.0
TSAI	51.00	26.00	Transaction Sys. Architects	38.31	-0.31	-0.8
NETWORK UP 1.6%						
CDMS	51.12	20.00	3Com Corp.	27.88	0.69	2.5
ADCT	53.62	15.75	ADC Telecommunications Inc.	47.06	1.38	3.0
ANTC	42.43	11.50	Antec (H)	39.63	5.81	17.2
BNYN	19.37	2.12	Banyan Systems Inc.	10.38	-1.38	-11.7
CS	16.31	6.62	Cabletron Systems	14.56	0.56	4.0
CNEBF	18.71	5.75	Call-Net Enterprises	6.50	0.13	2.0
CSCO	69.25	20.56	Cisco Systems Inc.	66.38	-0.25	-0.4
ECIL	45.00	19.75	ECI Telecom	38.38	1.88	5.1
HRS	43.18	27.31	Harris Corp.	38.19	0.06	0.2
GMH	63.87	30.37	Hughes Electronics/GM	60.06	1.38	2.3
ERICY	34.12	15.00	LM Ericsson	28.81	-0.56	-1.9
LU	79.50	26.68	Lucent Technologies (H)	79.50	8.00	11.2
MADGF	5.18	1.75	Madge Networks	3.44	0.19	5.8
NCDI	8.50	4.25	Network Computing Dev.	5.00	0.13	2.4
NWK	17.00	7.31	Network Equipment Tech.	9.88	-1.25	-11.2
NN	39.87	15.43	Newbridge Networks	27.94	0.44	1.5
NDK	98.00	29.50	Nokia Corp. (H)	97.38	2.88	3.0
NT	94.12	26.81	Northern Telecom Ltd. (H)	93.88	2.88	3.2
PAIR	16.12	6.00	Pairgain Technologies Inc.	11.13	-0.31	2.7
PCTL	11.12	4.31	Picturetel	6.56	0.13	1.9
SFA	41.25	11.75	Scientific Atlanta (H)	40.56	0.38	0.9
TLAB	73.87	15.68	Tellabs Inc.	73.25	5.25	7.7
USW	66.00	47.00	US West	59.06	1.06	1.8
VRLK	8.62	2.12	Veritlink	3.50	0.00	0.0
WSTL	11.18	2.75	Westell Technology Inc.	9.00	0.25	2.9
SEMICONDUCTORS, CHIPS & EQUIPMENT UP 2.9%						
AOPT	42.00	7.87	Adaptec (H)	41.25	1.38	3.4
AMD	33.00	9.31	Advanced Micro Devices	17.56	0.63	3.7
ALTR	46.87	14.56	Altera (H)	41.69	-2.44	-5.5
ADI	51.00	12.00	Analog Devices	49.19	1.25	2.6
AMAT	79.00	21.56	Applied Materials (H)	79.00	4.69	6.3
ASML	68.81	12.93	ASM Lithography Holding (H)	68.81	6.81	11.0
HRS	43.18	27.31	Harris Corp.	38.19	0.06	0.2
INTC	71.87	34.87	Intel Corp.	67.38	1.88	2.9
KLAC	71.88	20.75	Kla Instruments (H)	71.88	3.50	5.1
LLTC	75.75	19.56	Linear Technology (H)	74.00	2.75	3.9
LSI	50.12	10.50	LSI Logic (H)	48.38	-0.31	0.6
MXIM	73.50	22.31	Maxim Integrated Products (H)	70.81	1.56	2.3
MU	80.56	20.25	Micron Technology	54.19	5.19	10.6
MOT	100.18	38.37	Motorola (H)	98.50	-1.06	-1.1
NSM	29.18	7.43	National Semiconductor (H)	28.50	0.69	2.5
STM	78.82	17.93	SGS-Thomson Microelectronics (H)	76.63	5.38	7.5
SLR	73.25	19.37	Solectron Corp. (H)	70.31	-0.81	-1.1
TER	79.25	15.00	Teradyne (H)	76.13	2.06	2.8
TXN	153.25	45.37	Texas Instruments (H)	152.75	5.88	4.0
JOSU	177.43	31.25	Uniphase	171.44	1.94	1.1
VTSS	73.87	17.12	Vitesse Semiconductor Corp (H)	66.63	-2.63	-3.8
XLNX	64.56	14.87	Xilinx (H)	64.56	3.88	6.4
COMPUTER SYSTEMS UP 2.9%						
AAPL	56.75	28.50	Apple Computer Inc.	53.88	-0.06	-0.1
ASPX	12.50	1.62	Auspex Systems	11.13	-0.19	-1.7
CPQ	51.25	20.00	Compaq	27.31	0.81	3.1
DGN	21.81	7.00	Data General	15.88	-1.75	-9.9
DELL	55.00	20.37	Dell Computer Corp.	43.44	1.31	3.1
GTW	84.50	36.12	Gateway 2000 Inc.	71.38	3.44	5.1
HWP	114.50	47.06	Hewlett-Packard Co. (H)	114.50	8.13	7.6
HIT	109.93	40.18	Hitachi Ltd. (H)	104.19	6.06	6.2
IBM	139.18	55.37	IBM (H)	137.13	1.44	1.1
MUEI	24.75	9.00	Micron	11.50	1.44	14.3
MOT	100.18	38.37	Motorola (H)	98.50	-1.06	-1.1
NATI	45.37	17.50	National Instruments Corp.	42.50	0.94	2.2
NCR	55.75	23.50	NCR	52.25	2.13	4.2
NIPNY	78.43	31.00	NEC (H)	77.75	11.50	17.4
PRCM	13.25	3.43	Procom Tech Inc.	9.00	-0.19	-2.0
SQNT	19.00	5.68	Sequent Computer Systems	17.00	-0.06	-0.4
SGI	20.87	7.37	Silicon Grafix	16.69	-0.69	-4.0
SNE	126.87	60.25	Sony (H)	126.00	11.75	10.3
SUNW	76.43	19.18	Sun Microsystems (H)	75.97	4.91	6.9
TEXM	8.87	2.00	Texas Micro (H)	8.44	0.50	6.3
TRCD	4.87	0.37	Tricord Systems	3.25	-0.31	-8.8
UIS	45.31	17.62	Unisys (H)	45.31	3.31	7.9
INTERNET OFF -3.1%						
AMZN	221.25	21.75	Amazon.com	139.50	14.75	11.8
AOL	175.50	17.25	America Online	121.50	-6.06	-4.8
ATHM	99.00	11.75	@home Corp.	47.00	-6.63	-12.4
CKFR	69.12	5.75	Checkfree	32.56	2.72	9.1
CYCH	24.87	5.87	Cybercash Inc.	10.38	-2.44	-19.0
EDFY	16.87	3.81	Edify Corp.	13.50	-0.75	-5.3
EGRP	72.25	2.50	ETrade Group Inc.	38.00	-2.38	-5.9
SEEK	100.00	14.87	Infoseek	43.06	-8.06	-15.8
LCOS	145.37	20.06	Lycos Inc.	105.75	-1.00	-0.9
DMKT	27.00	4.25	Open Market Inc.	14.63	-1.25	7.9
OTEX	42.50	10.00	Open Text Corp.	34.00	2.75	8.8
PSIX	73.75	8.37	PSINet Inc.	64.75	8.19	14.5
SDTI	30.62	5.43	Security Dynamics	20.88	-1.56	-7.0
SPYG	32.25	8.62	Spyglass Inc.	17.00	-1.38	-7.5
YHOO	244.00	29.50	Yahoo Inc.	152.75	-8.13	-5.1
STORAGE & PERIPHERALS UP 4.1%						
ADPT	42.00	7.87	Adaptec Inc. (H)	41.25	1.38	3.4
APCC	27.75	13.12	American Power Conversion	22.13	1.34	6.5
CANNY	33.63	17.00	Canon Inc. (H)	32.13	2.13	7.1
OBD	39.87	19.12	Diebold Inc.	29.25	1.08	3.8
EK	88.93	60.81	Eastman Kodak Co.	72.00	1.44	2.0
EMC	67.50	20.81	EMC	64.50	5.44	9.2
IDM	10.18	2.93	Iomega	4.63	0.06	1.4
LXK	74.37	25.37	Lexmark International Group	66.13	3.06	4.9
QNTM	29.93	10.81	Quantum	26.00	1.44	5.9
SEG	44.25	16.12	Seagate Technology	26.88	-0.75	-2.7
STK	51.12	17.25	Storage Technology	26.38	2.50	10.5
TEK	35.87	13.68	Tektronix	28.44	-0.06	-0.2
XRX	63.93	39.00	Xerox	58.88	1.06	1.8

KEY: **(H)** = New annual high reached in period **(L)** = New annual low reached in period

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AltaVista Plans Free Net Access

quired to provide service. But Internet advertising — which is supposed to offset the cost of providing free access under the new model — currently totals about $2 billion per year, according to Cahners In-Stat Group, a market research firm in Newton, Mass.

Key Issues

Other key issues for service provider wanna-bes are how to protect their brands and retain customers in what can be a highly temperamental networked world.

For example, "If my bank is my Internet service provider and my Internet connection time is slow, I'm going to be cursing my bank," said John Jordan, director of e-commerce research at the Ernst & Young LLP Center for Business Innovation in Cambridge, Mass.

And what if a subscriber posts Nazi propaganda or pornography using the free service? "That's not the kind of thing you want affiliated with your brand, so there's a huge question of brand management," Jordan said.

AltaVista said it's still hammering out the details of how it will support its free service. The company is considering handing over management and support duties to San Francisco-based 1stUp.com. "It all depends on what the demand is," Emanuel said.

Founded a year ago by a group of Stanford University graduates, 1stUp.com developed and sells the application software that supports the online advertisers, portals or other free service providers and backbone providers involved in the free-access ventures.

Although new to the U.S., "free" Internet service has been available for nine months in the U.K. from Dixons, one of England's largest retailers. Dixons, through a spin-off company called Freeserve, provides free Internet time, though European subscribers — unlike U.S. consumers — must pay per-minute local telephone access charges. As such, the Dixons service cuts their bills only in half.

Freeserve gained 1 million subscribers in its first six months and now has about 1.25 million regular users, who log on for an average of 500 minutes per month. Last week, Freeserve, which is scheduled for an initial public offering next month, was valued at $2.3 billion. ◗

Continued from page 1

E-Retailers

That kind of up-front capability "is very, very important," said Andy Youngs, vice president of merchandising and fulfillment at EBags.com, an online luggage retailer in Denver. "If we were to open the doors [to foreign customers] right now, we wouldn't know all those things."

Already, about 10% of the purchase requests that EBags.com receives are from overseas, Youngs said. Within two years, 20% of its sales are expected to come from international orders. But for now, it's telling most would-be foreign buyers to sit tight.

Limited Shipping

Youngs said EBags.com does plan to start shipping a limited number of products to Canada and Mexico in September. But it's having to manually populate a landed-cost rate table that will go on its Web site and link buyers to Atlanta-based United Parcel Service of America Inc. for deliveries.

Shippers such as UPS and DHL Worldwide Express hope logistics software being released by several small vendors will eliminate that step and provide a calculation engine and a comprehensive collection of the tariffs and duties charged in different countries.

New York-based Syntra Technologies this week plans to add support for calculating landed costs to its global logistics software. NextLinx Corp. in Silver Spring, Md., said it's shooting to do the same thing by September.

Vastera Inc. in Dulles, Va., released a similar calculation engine last fall, but most of its customers are manufacturers looking to track their internal importing and exporting costs.

Both UPS and DHL said they're looking at those applications after getting requests from online retailers for help with landed-cost calculations. Up-front calculations also might help the carriers expand their business and improve cash flow by speeding up payments from some retailers.

"This is emerging as a critical issue," said Michael Comstock, senior vice president of e-commerce and planning at Redwood City, Calif.-based DHL. "The companies that we deal with are running into a lot of returns" from foreign customers who get surprised by big delivery bills.

For example, customs duties can nearly double the cost of a music CD for buyers in a country like Brazil, Comstock said. Among the major delivery companies, "My sense is that everybody is looking at this [issue] and working on it," he added.

Requests

"A lot of our customers have been asking for this," agreed Rick Sponholz, global e-commerce product manager at UPS. By year's end, he said, UPS expects to add one of the landed-cost engines to its Online Tools software for retailers that want to build its shipping services into their Web sites.

DHL is preparing to launch some pilot projects to test the new software. Both Comstock and Sponholz said a big issue that needs to be examined is whether the logistics vendors have built in accurate duty and tariff rates. "That content has to be there, and it has to be complete," Sponholz said. ◗

Add Service, and Blend

Some call center outsourcers plan to take the following blended approach to servicing customers via the Web:

ACTIVATE a live help button on a Web site that lets a customer click to be connected to an operator

INTEGRATE text, chat, Web collaboration and Internet telephony with PBXs and call-routing servers

BUILD a single agent desktop interface to all media channels

Continued from page 1

E-Commerce Pushes Revamp

information they need more quickly to make a purchase) and cost savings for companies that can automate more customer service.

Service levels also could improve, especially for e-commerce transactions, according to outsourcers.

"Today, a lot of e-commerce transactions are abandoned because a customer has a simple question that goes unanswered," said Dan Mendell, president of 800-Support Inc. in Portland, Ore. This year, 800-Support added real-time Web collaboration and high-capacity e-mail response capabilities to its existing telephone support services. "I am positive that [using these technologies] will increase sales closures," Mendell said.

One of the country's largest outsourcers, APAC Customer Services Inc. in Deerfield, Ill., next month plans to launch a service that will let agents answer questions and communicate with customers live while they're on the Web. Agents literally can control customers' browser screens to help guide them through transactions.

A vice president at a Boston-area financial institution predicted that integrating Web- and phone-based customer service would be a boon for online bankers. "It's much better to be able to click on a button [on the Web] and interact with a live person than to have to pick up the phone," said the executive, who asked not to be named.

But many outsourcers are just beginning to offer Web services, and phone work will still make up most of their business for the next two to three years, according to Colleen Amuso, an analyst at Gartner Group Inc. in Frankfurt.

Personnel represents 70% of a call center outsourcer's costs, and that isn't expected to change significantly, Amuso said. "The real challenge is integrating your call center with your Web service," Amuso said.

And systems integration and customization challenges abound. Outsourcer Trancom USA Inc. in Carmel, Ind., for instance, is working to bring together its traditional hardware-intensive telephony systems with new software systems it's developing, said network engineering director Tramel Wilson. That could help reduce the cost of building a 120-seat call center from $1.5 million to $700,000.

Michael Amigoni, vice president at Call Center Options in Kansas City, Mo., said he sees cost savings resulting from integrated Web and call center systems. Last May, Call Center Options equipped its traditional call center with Internet telephony features.

"By using the Internet, we don't have to spend all that money on proprietary networks," Amigoni said. And reports that were traditionally faxed to clients can now be put on a Web server. ◗

MORE THIS ISSUE

For more on integrating your customer service options, **see page 82.**

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FRANK HAYES/FRANKLY SPEAKING

Hide this column

HEY, WAIT A MINUTE! Isn't information supposed to be the lifeblood of modern business? And aren't we supposed to be all about information — managing it, processing it, delivering it? So how come everybody else in the business world seems to spend so much of their time *hiding* information?

Salespeople hide information on prospects from the boss and other salespeople. They hide delays, bottom-line prices and quality problems from customers. Customers hide their real plans and priorities from sales guys and try to keep their business prospects and problems a secret, too.

Product designers hide what they're working on, how long it will take, whether anyone has a clue whether it can be built. (And you thought only programmers did that.)

Finance hides how much money will actually be available for departmental budgets. And every department hides how much it really needs — not just from finance, but also from other departments. Everybody hides miniature slush funds in line items that are as broad and vague as humanly possible.

Human resources hides as much as it can from applicants about real job requirements. And everybody else hides everything from HR.

Sound crazy? It's not. These folks aren't stupid or paranoid. They just don't trust the people they're hiding information from. Everybody has an agenda, and it's probably not yours. Show your cards to the wrong people, and next thing you know, they've jacked up your quotas, shortened your schedules and raised the bar.

So the CEO doesn't tell the CIO why the CFO won't support the COO's supply-chain pitch. Maybe you're about to merge with a competitor. Maybe it's all about to be outsourced. Or maybe the COO just plays golf better than the boss.

The department head won't explain whether the faster PCs are really for better customer service or better Web browsing, or if that backward-compatibility requirement in the new application is really just so the untrainable half of the staff won't have to be retrained.

And IT? Oh, we're not in the information hiding game at all, right? We just hide deployment plans, known glitches, schedule slips, project statuses, personnel problems, product incompatibilities, network bottlenecks and exactly what part of the wish list won't make it into that new system no matter how loud users scream.

We hide our data from users, our technical tricks from each other — and our career plans from everyone.

Hidden information, misinformation, disinformation — that's the *real* lifeblood of modern business.

And that's not about to change. Oh, maybe over decades, with fanatical and unwavering support from the chairman, the board of directors and the whole executive suite, there might be some headway against the culture of information hiding.

Yeah, sure.

That doesn't mean the situation is hopeless. After all, people have been hiding information for as long as there's been information to hide — whether it's Y2K status, who's in on the plot to stab Caesar or where Og keeps his stash of mastodon steaks.

You can uncover the information you need.

Do your homework. Listen at the watercooler. Make friends. Cut deals. Swap secrets. Collect blackmail evidence.

Just don't assume anyone will ever hand you the information you really need to make yourself, your systems and your users successful.

Now, quick — hide this before someone else sees it. ◗

Everybody has an agenda, and it's probably not yours.

Hayes, Computerworld's staff columnist, doesn't hide the fact that he has covered IT for 20 years. His e-mail address is frank_hayes@computerworld.com.

SHARK TANK

IT MAY HAVE BEEN NAMED by a nasty eighth-grader, but the Shark plans to keep a close eye on this Back Orifice 2000 Trojan horse (see page 12). Ira Winkler, president of Internet Security Advisors Group and a respected security guru even in the Tank, warned IT that Trojan horses "always have a slow start, peaking in two or three months." Sigh. Time to make sure somebody's updating the antivirus stuff . . .

EYES WIDE SHUT, indeed. Here's Karole L. Johns, director of desktop services at Thomson Financial, a Rockville, Md., outfit, talking about the time warp that business managers at her company are in: "Technology is so much more advanced now than it was even two years ago, but they're still looking at it with the eyes of five years ago."

GATEWAY CUSTOMERS, listen up: A pilot fish was helping a friend pick out a PC at a Gateway Country store the other day. The frazzled saleskid dropped the news that it'll take 20 days to ship the system. Gateway, the kid said, has shifted to a new order-entry system that's got the company tied up in knots.

THE CIO at a New York-area hospital tells Sharky that his outfit, which gets a third of its revenue from the state, hasn't seen a check since April – New York legislators are too busy blowing hot air to approve a budget. So the CIO hasn't been able to pay his vendors for three months. And you thought squeezing a check out of *your* accounting department was tough. . . .

SO A PR TYPE calls one of the kids at *Computerworld.* Asks if her client, a big-name IT vendor, can get some mileage out of the capture of alleged serial killer Rafael Resendez-Ramirez – her client's product is used in a court system. Turns out the same flack made the same pitch when New York Yankee Darryl Strawberry was arrested on drug and prostitution charges last spring. "An interesting twist," she called it. Well, *somebody's* twisted. Want to let a vendor, a boss or even a PR flack twist in the wind? Shoot the Tank a note: **sharky@computerworld.com**.

The 5th Wave

E-mail Rich Tennant at the5wave@tiac.net

"The first thing you should know about investing online is that when you see the exploding bomb icon appear, it's just your browser crashing — not your portfolio."

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